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#### Financial incentives are rebates, grants, loans, Tax Incentives, green building incentives, and industrial recruitment. Distinct from Community Investment & Rules & regulations

#### The aff isn’t an example of a topical incentive

Gouchoe 2k—North Carolina State University, National Renewable Energy Laboratory [Susan, December 2000, Local Government and Community Programs and Incentives for Renewable Energy— National Report, http://seg.fsu.edu/Library/casestudy%20of%20incentives.pdf]

EXECUTIVE SUMMARY

This report presents a summary of the renewable energy programs and incentives of 45¶ communities in 23 states as collected and catalogued by the Interstate Renewable Energy¶ Council’s (IREC) Database of State Incentives for Renewable Energy (DSIRE) project. Also included are summaries of state initiatives that impact implementation of renewable energy¶ technologies on the local level. Programs and incentives in this report include:

COMMUNITY INVESTMENT & AWARENESS PROGRAMS

v Renewable Energy Projects

v Education & Assistance

v Green Pricing Programs

v Green Power Purchasing

FINANCIAL INCENTIVES

v Rebates, Grants, & Loans

v Tax Incentives

v Green Building Incentives

v Industrial Recruitment

RULES, REGULATIONS & POLICIES

v Solar & Wind Access

v Net Metering

v Construction & Design

v Contractor Licensing

v Equipment Certification

v Public Benefits Funds

v Renewable Energy Portfolio Standards

v Disclosure & Certification

Established in 1995, DSIRE is an ongoing project to summarize incentives, programs, and¶ policies for renewable energy. The project is funded by the U.S. Department of Energy’s¶ Office of Power Technologies and is managed by the North Carolina Solar Center. DSIRE on¶ Line makes the DSIRE database accessible via the web at:¶ http://www.ncsc.ncsu.edu/dsire.htm. The website is updated daily and includes search¶ capabilities for all incentives. In addition to state and local programs, the website features¶ utility programs and a searchable bibliography.

#### VOTE NEGATIVE

#### PREDICTABLE LIMITS—the word incentives in the resolution is modified by financial to make it manageable. Going beyond makes the topic unpredictable.

#### GROUND—financial incentives insure the aff has links to market disads and counterplans which are the only core negative ground across bi-directional energies. Holding the line key

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#### Text: The United States Federal Government should fully fund and expedite renewable energy generation, generator retrofits, and micro-grids for its installations based on the Smart Power Infrastructure Demonstration for Energy Reliability and Security program. The United States federal government should establish a nitrogen fertilizer tax of 16 cents per pound of nitrogen, and use the revenue from that tax to provide loan guarantees for farmers to procure biocharcoal technology.

#### The SPIDERS system solves energy islanding and cyber-terror via diverse fuel sources, smart micro-grids, and design around anti-terror technology

Ackerman 12—Robert K. Ackerman has been the editor in chief of SIGNAL Magazine for more than a dozen years, seasoned technology journalist, served as a war correspondent covering the Iraq War embedded with the U.S. Army’s 101st Airborne Division, “Cybersecurity and a power supply come together on local bases,” http://www.afcea.org/content/?q=node/2877]

No man may be an island, but each U.S. military base may become an energy island if a joint project among the Department of Energy, the Department of Homeland Security and the Defense Department comes to fruition. The effort aims to develop a microgrid that would supply a base with internal power independent of any external source that might fail as a result of enemy action.

Network security would be a key element of this energy microgrid. Facing the possibility of a cyberattack on the nation’s power grid, military bases must be able to sustain internal power with a degree of immunity from the online tactics employed by cybermarauders.

This program also seeks to blend a host of conventional and alternative energy sources into a single entity that would respond seamlessly to internal base power demands. Complicating the endeavor to link these energy sources is the requirement to provide secure network control that could interoperate with the public power grid but still be immune to cyberthreats that menace the larger network.

Known as the Smart Power Infrastructure Demonstration for Energy Reliability and Security, or SPIDERS, the project is a Defense Department joint capability technology demonstration (JCTD). It already is underway at Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, and later phases will evaluate progressively sophisticated systems at Fort Collins, Colorado, and Camp Smith, Hawaii.

Melanie Johnson, an electrical engineer with the Army Corps of Engineers Construction Engineering Research Laboratory, explains that SPIDERS is designed to develop a template for bringing microgrid technology to military installations in the United States. Its success would have implications for installations outside the United States, particularly in operational settings, she points out.

Part of the SPIDERS technical management team, Johnson explains that a key element in SPIDERS is to provide network security for the communications and control systems within that microgrid environment. That security would be vital if a base loses power because of a cyberattack on the local power grid.

What sets SPIDERS apart from other microgrid efforts is its emphasis on cybersecurity and network communications. Security is a primary SPIDERS objective, Johnson says, adding that this includes information assurance certification and implementing emerging standards from the National Institute of Standards and Technology (NIST), the North American Electric Reliability Corporation (NERC) and Department of Energy organizations.

Adding cybersecurity to the microgrid complicates the picture and requires “a little critical thinking,” Johnson observes. However, SPIDERS is not employing the traditional approach of first developing a control system and then overlaying security. Instead, security will be integrated into the system as it is developed. The result will be a comprehensive security solution that is tailored to the system, she offers.

The microgrid control system continually will monitor power quality and conditions in the regional power grid. If it detects instability or significant quality issues, it can alert monitors who would decide to disconnect the base from the external grid. The microgrid would continue to provide power to critical missions.

#### A fertilizer tax plus subsidy would incentivize farmers to shift to biochar.

Tom Konrad, 12/14/2009. PhD Mathematics @ Purdue, CFA, financial analyst, freelance writer, and policy wonk specializing in renewable energy and energy efficiency. “The Nitrogen-Biochar Link,” Clean Energy Wonk, http://cleanenergywonk.com/2009/12/14/the-nitrogen-biochar-link/.

Biochar, used as a soil amendment, improves water and nutrient uptake by plants. It has its greatest effects in poor soils, helping the plants access the nutrients that are available, and this effect can last for centuries after the soil has been amended with biochar. Biochar-ameneded soil should reduce the risks to farmers of using too little fertilizer, and hence reduce the incentive to over-apply, benefiting both the farmers and everyone else in the watershed. Studies suggest that fertilizer taxes are the most economically efficient way to reduce Nitrogen runoff. **If such taxes were in place, farmers would have a stronger incentive to use biochar in order to make the most of the suddenly more expensive fertilizer**. For environmentalists interested in reducing carbon emissions, this would have the added benefit of reducing nitrous oxide (N2O) emissions from heavily fertilized soils, for an additional reduction of greenhouse emissions. Hence, [Biochar advocates](http://www.biochar-international.org/) should team up with groups concerned about the [fisheries](http://news.nationalgeographic.com/news/2005/05/0525_050525_deadzone.html) and health effects of runoff to advocate for higher taxes on nitrogen fertilizer. When farmers complain, perhaps we can buy them off by using the revenue for a biochar subsidy?

#### Solves through sequestration without reducing coal emissions.

Technology Review, 4/26/2007. “The Case for Burying Charcoal,” published by MIT, http://www.technologyreview.com/news/407754/the-case-for-burying-charcoal/.

Several states in this country and a number of Scandinavian countries are trying to supplant some coal-burning by burning biomass such as wood pellets and agricultural residue. Unlike coal, biomass is carbon-neutral, releasing only the carbon dioxide that the plants had absorbed in the first place. But a new research [paper](http://dx.doi.org/10.1016/j.biombioe.2007.01.012) published online in the journal Biomass and Bioenergy argues that the battle against global warming may be better served by instead heating the biomass in an oxygen-starved process called pyrolysis, extracting methane, hydrogen, and other byproducts for combustion, and burying the resulting carbon-rich char. **Even if this approach would mean burning more coal**--which emits more carbon dioxide than other fossil-fuel sources--**it would yield a net reduction in carbon emissions**, according to the analysis by [Malcolm Fowles](http://technology.open.ac.uk/tm/mf.htm), a professor of technology management at the Open University, in the United Kingdom. Burning one ton of wood pellets emits 357 kilograms less carbon than burning coal with the same energy content. But turning those wood pellets into char would save 372 kilograms of carbon emissions. That is because 300 kilograms of carbon could be buried as char, and the burning of byproducts would produce 72 kilograms less carbon emissions than burning an equivalent amount of coal. ¶ Such an approach could carry an extra benefit. Burying char--known as black-carbon sequestration--enhances soils, helping future crops and trees grow even faster, thus absorbing more carbon dioxide in the future. Researchers believe that the char, an inert and highly porous material, plays a key role in helping soil retain water and nutrients, and in sustaining microorganisms that maintain soil fertility. ¶ Johannes Lehmann, an associate professor of crops and soil sciences at Cornell University and an expert on char sequestration, agrees in principle with Fowles's analysis but believes that much more research in this relatively new area of study is needed. "It heads in the right direction," he says.¶ Interest in the approach is gathering momentum. On April 29, more than 100 corporate and academic researchers will gather in New South Wales, Australia, to attend the first international conference on black-carbon sequestration and the role pyrolysis can play to offset greenhouse-gas emissions. Lehmann **estimates that as much as 9.5 billion tons of carbon--more than currently emitted globally through the burning of fossil fuels--could be sequestered annually by the end of this century through the sequestration of char**. "Bioenergy through pyrolysis in combination with biochar sequestration is a technology to obtain energy and improve the environment in multiple ways at the same time," writes Lehmann in a research paper to be published soon in [Frontiers in Ecology and the Environment](http://www.frontiersinecology.org/). Fowles says that there would be an incentive for farmers, logging communities, and small towns to convert their own dedicated crops, agricultural and forest residues, and municipal biowaste into char if a high enough price emerged for the sale of carbon offsets. "Every community at any scale could pyrolyse its biowaste ... motivated by doing their bit against global warming," he says. Fowles believes that storing black carbon in soil carries less risk, would be quicker to implement, and could be done at much lower cost than burying carbon dioxide in old oil fields or aquifers. And he says the secondary benefits to agriculture could be substantial: "Biochar reduces the soil's requirement for irrigation and fertilizer, both of which emit carbon." Fowles adds that it has also been shown to reduce emissions of greenhouse gases from decay processes in soil. This would include nitrous oxide, a potent greenhouse gas. "Biochar has been observed to reduce nitrous-oxide emissions from cultivated soil by 40 percent."

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#### Immigration is the top issue – has momentum to pass

THE HILL 2 – 5 – 13 [Hoyer favors Obama's immigration plan over Senate's, <http://thehill.com/homenews/house/281209-hoyer-favors-obamas-immigration-plan-over-senates>]

Hoyer's position aligns him with President Obama as lawmakers tread carefully into the immigration-reform debate that's sure to consume a great deal of Capitol Hill's political oxygen this year.

"It's somewhat a subject[ive] judgment whether the borders are secure or not secure," Hoyer told reporters in the Capitol. "Nobody believes that the borders in a democratic, open country are ever going to be totally non-porous.

"I think the two [citizenship and security] are related," he added, "but ought not to be contingent upon the other."

Often a third rail in Washington, the issue of immigration reform has moved near the top of Congress's priority list this year largely as a result of November's elections, in which more than 70 percent of Hispanic voters chose Obama over GOP contender Mitt Romney.

Hoping to undercut that trend, Republicans – long opposed to comprehensive reform, particularly so-called "amnesty" provisions that would carve a pathway to citizenship for the nation's estimated 11 million illegal immigrants – have appeared much more open to an overhaul since the election.

Last week, a bipartisan group of influential senators unveiled a sweeping package that would bolster border security and guest worker programs – both desired by Republicans – while creating a pathway to citizenship for those living in the country illegally, a demand from the Democrats.

The Senate's plan would make the citizenship benefits “contingent upon securing the border" – a step Obama rejected when he outlined a similar plan a few days later.

The House Judiciary Committee held its first hearing on the thorny subject Tuesday, with the Senate vowing to follow later this month.

Hoyer said Tuesday that he's hopeful Congress will send a comprehensive reform bill to Obama this year.

"The Democrats want to see a comprehensive immigration bill, [and] I think the Republicans, frankly, think they need to be supportive of a comprehensive immigration bill," he said. "So combine the wants and the needs [and] I think there are good prospects."

#### Obama’s role as broker is key

FOLEY 1 – 15 – 13 reporter for the Huffington Post in Washington, D.C. She previously worked at The Washington Independent [Elise Foley, Obama Gears Up For Immigration Reform Push In Second Term, <http://www.huffingtonpost.com/2013/01/15/obama-immigration-reform_n_2463388.html>]

Obama has repeatedly said he will push hard for immigration reform in his second term, and administration officials have said that other contentious legislative initiatives -- including gun control and the debt ceiling -- won't be allowed to get in the way. At least at first glance, he seems to have politics on his side. GOP lawmakers are entering -- or, in some cases, re-entering -- the immigration debate in the wake of disastrous results for their party's presidential nominee with Latino voters, who support reform by large measures. Based on those new political realities, "it would be a suicidal impulse for Republicans in Congress to continue to block [reform]," David Axelrod, a longtime adviser to the president, told The Huffington Post.

Now there's the question of how Obama gets there. While confrontation might work with Republicans on other issues -- the debt ceiling, for example -- the consensus is that the GOP is serious enough about reform that the president can, and must, play the role of broker and statesman to get a deal.

It starts with a lesson from his first term. Republicans have demanded that the border be secured first, before other elements of immigration reform. Yet the administration has been by many measures the strictest ever on immigration enforcement, and devotes massive sums to policing the borders. The White House has met many of the desired metrics for border security, although there is always more to be done, but Republicans are still calling for more before they will consider reform. Enforcing the border, but not sufficiently touting its record of doing so, the White House has learned, won't be enough to win over Republicans.

In a briefing with The Huffington Post, a senior administration official said the White House believes it has met enforcement goals and must now move to a comprehensive solution. The administration is highly skeptical of claims from Republicans that immigration reform can or should be done in a piecemeal fashion. Going down that road, the White House worries, could result in passage of the less politically complicated pieces, such as an enforcement mechanism and high-skilled worker visas, while leaving out more contentious items such as a pathway to citizenship for undocumented immigrants.

#### SMR debates are polarizing.

Schmid 11— Sonja Schmid, 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. [“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.

#### 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 DA 2

#### DoD support for biofuels is increasing—that assuages investor fears

[Lawrence](http://blogs.forbes.com/pikeresearch/) 12/14/12—Contributor @ Forbes [[Mackinnon Lawrence](http://blogs.forbes.com/pikeresearch/), “Policy Shifts Signal Growth Ahead for Advanced Biofuels,” Forbes, 12/14/2012, http://tinyurl.com/c5j372j]

Over the past year, the U.S. military has emerged as a key torchbearer leading the commercialization of advanced biofuels.  Spearheaded by the Navy, which signed a Memorandum of Understanding (MOU) with the U.S. Department of Agriculture (USDA) and Department of [Energy](http://www.forbes.com/energy/) (DOE) to develop cost-competitive advanced biofuels, the DoD has been a lone bright spot for an industry that has suffered from press blowback and investor retrenchment in recent years.

Only $84 Billion to Go

Prior to the Hagan amendment, the Senate approved another amendment, offered by Senator Mark Udall of [Colorado](http://www.forbes.com/places/co/), to repeal section 313 of the annual Defense appropriations bill.  Offered by Republican Senator James Inhofe of [Oklahoma](http://www.forbes.com/places/ok/), Section 313 would have prohibited the DoD from procuring alternative fuels if they cost more than their conventional counterparts.  The section was introduced in response to the U.S. Navy’s [highly criticized purchase of advanced biofuels](http://www.biodieselmagazine.com/articles/8585/us-navys-great-green-fleet-demonstration-is-underway) from firms like [Solazyme](http://solazyme.com/) and [Dynamic Fuels](http://www.dynamicfuels.com/) for its “Great Green Fleet” exercises off the coast of Hawaii, at an estimated price-tag of $15 per gallon.

These bills are expected to facilitate public-private partnerships and funnel much-needed capital to support advanced biorefinery construction within the United States.  In our [Industrial Biorefineries](http://www.pikeresearch.com/research/industrial-biorefineries) report, Pike Research forecasts that at least 13 billion gallons of advanced biorefinery production capacity will come online over the next decade in the United States.  Although that falls short of the 21 billion gallons of advanced biofuels carved out under the EPA’s Renewable Fuel Standard (RFS), more than $60 billion will be invested over that same period.

With the minimum cost of scale-up to meet the advanced biofuel production mandate estimated at $84 billion, the industry still has significant ground to make up.  Although continued federal support will help assuage investor fears, uncertainties around feedstock supply and production profitability persist, translating into high levels of risk for investors.

Advanced biofuels, which address these concerns at least in part, have enjoyed a rising tide of policy support in recent months from Washington.  In August, Congress allocated $170 million to support the development of military biofuels and other defense initiatives, voted to extend key tax credits for advanced biofuel producers, and granted algae producers tax credit parity with other feedstock pathways.  Meanwhile, the recent commissioning of first-of-kind facilities from advanced biofuel producers [KiOR](http://www.kior.com/) and [INEOS Bio](http://www.ineosbio.com/57-Welcome_to_INEOS_Bio.htm) are strong indicators of a maturing cellulosic biofuels industry.

#### They force a tradeoff with the fuel budget

Eoyang 12—National Security Director @ Third Way [Mieke Eoyang, Julie Zelnick (Policy Advisor for National Security @ Third Way), & Ryan Fitzpatrick (Senior Policy Advisor for the Third Way Clean Energy Program), “Fuel Costs Squeeze Defense Budget,” Third Way Digest, May 2012, pg. 1]

In 2011, Congress passed the Budget Control Act, which put long-term limits on defense spending as part of a broader effort to curb the $15.7 trillion federal budget deficit. Though DOD’s budget will grow over the next 10 years, it will rise at a smaller rate than previously projected. This means DOD’s topline budget going forward will be more flat. Rising costs in one area will come at the expense of others.1

Given such constraints, DOD must carefully scrutinize every cost and find efficiencies where it can. One of those costs is fuel—a critical component of military operations, especially for ground vehicles, ships, and aircraft. DOD spends about $16 billion on fuel each year—more than double what UPS, FedEx, and DHL spend on global shipping operations, combined.3

#### Biofuels will lose out

Erwin 12—Editor of National Defense Magazine [Sandra I. Erwin, [‘Policy Uncertainty’ Could Choke Development of Military Biofuels](http://www.nationaldefensemagazine.org/blog/Lists/Posts/Post.aspx?ID=844),” National Defense, 7/26/2012, http://tinyurl.com/d82e34n]

To outsiders, the NDAA debate is just one more partisan battle in Washington’s larger political wars. But anti-biofuel sentiments on Capitol Hill are raising serious alarm bells within the alternative-fuel industry and stirring concerns among Pentagon officials who support green energy because of the chilling effect that the political divide could have on private investment.  
“If there is a lot of uncertainty, we are going to lose private capital,” said Phyllis Cuttino, director of the Pew Project on National Security, Energy, and Climate.   
The Defense Department’s plan to become a consumer of alternative fuels is predicated on the ability of the private sector to scale up production and on commercial airlines transitioning to biofuels so prices become more competitive. All that requires substantial private investments that might be at risk if venture capitalists decide that the politics of biofuels pose too big a financial risk.  
Assistant Secretary of Defense for Operational Energy Plans and Programs Sharon Burke said she does have concerns that legislative restrictions could jeopardize the Defense Department’s goals to diversify its sources of energy.  
“For the future, our military will need alternatives to petroleum to keep our supplies diverse, especially for our legacy fleet of ships and planes, which will be with us for decades to come,” Burke said in a statement to National Defense. “The private sector will be the leaders in developing a commercially viable alternative fuels industry, and we have concerns that restrictions on the department's ability to obtain the milspec fuel we need to achieve our mission may reduce the development and availability of these alternatives over the long term.”  
The Defense Department began to step up its pursuit of alternative fuels in 2007, and over the past two years the [Navy and the Air Force have made headlines for their embrace of aviation biofuels](http://www.nationaldefensemagazine.org/blog/lists/posts/post.aspx?ID=832) as a future hedge against rising oil prices and unreliable foreign oil suppliers.   
In the wake of the House and Senate NDAA amendments, Pew has mobilized biofuels supporters and [released a letter this week that was signed by more than 350 veterans](http://www.nationaldefensemagazine.org/blog/Lists/Posts/energy-innovation-seen-as-needed-to-reduce-dependence-on-foreign-oil-save-money-85899406931), including retired generals and admirals, as well as former Senate and House Armed Services Committee chairmen Sen. John Warner and Rep. Ike Skelton, urging the president and Congress to support the Pentagon’s initiatives to diversify its energy sources. The letter echoes biofuel producers’ belief that the military is needed as an essential anchor customer.  
Lawmakers in the House and Senate have argued that biofuels are cost prohibitive at a time when the military’s budget is stretched. The Navy’s “great green fleet” effort was particularly criticized by members of the House Armed Services Committee as an example of misplaced priorities when the Navy is cutting back on new ship buys and other modernization programs.   
The Senate Armed Services Committee agreed to add anti-biofuel provisions to the NDAA. Biofuel supporters’ best hope now lies with Sens. Jeanne Shaheen, D-N.H., and Susan Collins, R-Maine, who vowed in a recent op-ed article that they would fight to protect the Defense Department’s biofuel funds, including a Navy commitment of more than $200 million as part of joint $500 million effort with the Departments of Energy and Agriculture.   
Cuttino said the green-energy community has been taken aback by the partisan tenor of an issue that has national security implications.   
“We’ve been dismayed by the politicization of these [military biofuel] efforts,” Cuttino said July 24 during a conference call with reporters. “These issues should not be politicized,” she said. “To have these innovations singled out is unfortunate.”  
The Pentagon’s financial commitment is being blown out of proportion, she said. Biofuel expenditures are a tiny fraction of what the Defense Department spends on fuel each year, Cuttino said. The Pentagon’s annual energy bill is about $15 billion, three-quarters of which is spent on liquid fuels. Pew estimated that Defense Department biofuel expenditures last year were $1.2 billion, up from $400 million two years ago. A Pew study projects military biofuel purchases will reach $10 billion annually by 2030.  
When Congress was fighting a year ago over the nation’s debt ceiling, investors were alarmed. The battle over biofuels creates a similar cloud of policy uncertainty that could be damaging to an industry that is just getting off the ground, Cuttino said.  
The trends in private investment in alternative energy in G-20 countries are cause for concern, she said, as they indicate that investors tend to flee when they see policy indecision. “What we know from all our research over several years is that if there is a question of uncertainty when it comes to policy, private investment will move on to another country where there is more policy certainty.”  
The United States currently is a world leader in attracting private capital to alternative energy, she said. The European economic crisis might keep the United States in the lead for some time, but venture capitalists also may be souring on U.S. biofuels investments, according to analysts.

Interest in capital-intensive industries such as energy is fading, said a July report by Dow Jones VentureSource. Investors are raising red flags about biofuel investment because of the large amounts of capital needed to build infrastructure. “The second quarter is the worst for investment in energy and utilities start-ups since the first quarter of 2009,” said VentureSource.  
The Commercial Aviation Alternative Fuels Initiative — a coalition of airlines, aircraft and engine manufacturers, energy producers and U.S. government agencies — cautions that project financing is still the “biggest remaining challenge to the deployment of alternative aviation fuels.” Nevertheless, CAAFI is “confident that environmentally friendly alternative jet fuel derived from several feedstocks will be available in the next two to five years,” the group said in a statement on its website. The barrier to deployment, said CAAFI, is the availability of capital, as production plants cost on the order of $100,000 per barrel per day.  
FlightGlobal.com reported that, since 2007, more than 1,500 passenger flights have been made using biofuels produced from feedstocks such as household waste and algae. “The major challenge now is to work out how to produce large quantities of sustainable biofuel at a cost that is commercially competitive to airlines,” FlightGlobal noted.  
Lufthansa, one of the world’s largest airlines, has projected that renewable jet fuel will replace up to 5 percent of the market in the next five to seven years.   
In the United States, the biofuel industry needs the military to commit to long-term purchases so it can secure investors, Pew said in a statement. “The military’s leadership, cooperation with the private sector, and early adoption have been critical to the commercialization of many technologies such as semiconductors, nuclear energy, the Internet, and the Global Positioning System,” Pew noted. “Maintaining energy innovation, inside and outside the Defense Department, is critical to our national security.”

#### Biofuels will end oil wars.

Ventura 12—Essayist and cultural critic @ Austin Chronicle [[Michael Ventura](http://www.austinchronicle.com/authors/michael-ventura/), “Letters at 3AM: A Big Picture and a Long Game,” Austin Chronicle, [Fri., Oct. 19, 2012](http://www.austinchronicle.com/issues/2012-10-19/), pg. http://tinyurl.com/col9hvh

It's like Alice watching the Queen of Hearts play cards and croquet: "Three times so far this year, the Joint Chiefs of Staff and the regional war-fighting commanders have assembled at [Marine Corps Base Quantico, Va.], where a giant map of the world, larger than a basketball court, was laid out on the ground. ... The generals and admirals walked the world and worked their way through a series of potential national security crises. ... 'Strategic seminar' is the name Gen. Martin E. Dempsey, chairman of the Joint Chiefs of Staff, has chosen for these daylong sessions" (The New York Times online, Sept. 12).

Let's walk this immense map. We'll stroll roughly 5,500 miles from the Strait of Gibraltar eastward to the Afghan-Pakistani border. Then let's amble another 7,000 miles from Kazakhstan in Asia to Angola in Africa. In the area we've walked, alliances overlap and contradict one another—and are further complicated by trade routes, oil fields, rebels, pirates, and terrorists—and the United States has positioned itself in such a way that its chain can be yanked from almost any direction.

Focus on oil. According to the U.S. Energy Information Administration ([www.eia.gov](http://www.eia.gov/)), in 2011, 69% of U.S. oil originated in five countries, listed by volume: Canada, Saudi Arabia, Mexico, Venezuela, and Nigeria. Of the next 10 largest sources, six are in the area we've walked: three in the Persian Gulf—Iraq, Kuwait, and Oman; three in Africa—Angola, Algeria, and Chad.

Imagine some general scenarios: A destabilized Tunisia impacts bordering Algeria. A destabilized Libya impacts bordering Algeria and Chad. Chad, destabilized by a destabilized Libya, in turn destabilizes Nigeria.

Move west from Africa. A destabilized Yemen impacts neighboring Saudi Arabia and Oman. A belligerent Iran impacts Iraq, Kuwait, Saudi Arabia, and Oman.

Draw lines of possible crises this way and that, and the generals, admirals, and war commanders walking the big map must be bumping into one another with alarming frequency any way they turn. All for imported oil.

Oil dependence has put the United States in a strategically vulnerable and ultimately untenable position. There's no way we can cover all that turf indefinitely. We've neither the money nor the manpower.

One issue is clear: The cessation of our participation in Iraq and Afghanistan won't affect the overall situation.

"Large numbers of MRAPs [armored troop carriers] ... in Iraq and Afghanistan [will be] stored in Italy, where they could be transported for contingencies across Africa" (The New York Times online, July 27). "Contingencies" is a neutral word for war.

In 2008, President George W. Bush authorized "the newest regional headquarters, Africa Command" (The New York Times, Oct. 5, 2008, p.8). "Africom" is based in Stuttgart, Germany, "owing to local [African] sensitivities." Its commander, Gen. William E. Ward, "rejected criticisms that Africa Command would result in a militarization of foreign policy, and he said it was specifically structured for cooperative efforts," though he didn't define what that meant.

Whatever it meant, President Obama has appointed a new commander. Gen. David M. Rodriguez is an officer of "extensive combat experience. ... [He] served two tours in Iraq and two tours in Afghanistan ... and later [was] deputy commander of allied forces there with responsibility for day-to-day management of the war. ... [Rodriguez] was one of the architects" of Obama's Afghan surge (The New York Times online, Sept. 19).

Sounds like the Pentagon and the White House anticipate action in Africa.

The July 27 report cited above added that "MRAPs would be sent to warehouses in the western Pacific" and "significant numbers are stored in Southwest Asia."

The U.S. is building a base in Darwin, on the northwest tip of Australia, "as a new center of operations in Asia as it seeks to ... grapple with China's rise" (The New York Times, Nov. 15, 2011, p.6).

Recently, Secretary of State Hillary Rodham Clinton and Secretary of Defense Leon E. Panetta crisscrossed the western Pacific from China to New Zealand assuring everybody that we're not trying to "contain" China; we're merely, in Panetta's words, continuing "to be what we have been now for seven decades: the pivotal military power in the Asia-Pacific region" (The New York Times online, Sept. 13).

But something is true today that has not been true for most of those seven decades. According to the Central Intelligence Agency ([www.cia.gov](http://www.cia.gov/)), China is the No. 1 trading partner of Australia, Japan, South Korea, Malaysia, the Philippines, the Solomon Islands, Taiwan, and Thailand. And China is a major commercial player with everybody else in the region.

We're defending these Pacific countries against their major trading partner?

"'What worries us is having to choose [between the U.S. and China]—we don't want to be in that position,' said the foreign minister of Indonesia" (The New York Times online, June 1). You bet they don't.

China, Japan, and others are jockeying for some seemingly worthless (even uninhabited) islands in the South and East China seas.

"Quarrels over these hunks of volcanic rock wouldn't matter much except that China, Vietnam, and the Philippines are running into one another in the race for oil" (The New York Times, Nov. 13, 2011, p.SR4). It's about offshore drilling, that report says. "The South China Sea alone is estimated to have 61 billion barrels of petroleum—oil and gas—plus 54 billion yet to be discovered." Oil again.

In the long game, who wins influence over the area? The United States or China? Put it another way: Who wins? The depleted, financially struggling, politically deadlocked nation many thousands of miles away or the money- and manpower-rich rising nation playing in its own pool? (After all, the disputed areas are called the South and East China Seas.)

Again, the U.S. is setting itself up in a strategically untenable position.

Navy Secretary Ray Mabus said, "We buy too much fossil fuels from potentially or actually volatile places on earth" (NPR online, Sept. 26, 2011).

But the unexpected always happens, and that NPR report reveals something most unexpected: Of all U.S. federal institutions, the Navy and Air Force lead in seeking a nonviolent, eco-friendly path out of America's strategic morass. They "have been busy testing their aircraft ... on jet biofuel. ... [T]he Navy has launched a project to invest up to half a billion dollars in biofuel refineries. Mabus says he is committed to getting 50 percent of the Navy's fuel for aircraft and surface ships from renewable sources by 2020 because dependence on foreign oil makes the U.S. military vulnerable."

Predictably, "the biofuel program has struck a nerve among Republicans," who are trying to limit military biofuel use by law (The New York Times online, Aug. 27). Their Big Oil donors know that if a military market makes biofuels cheap, then America's airlines, railways, and truckers will want it too, and other oil-dependent nations will follow our lead.

Mostly for the sake of oil, the Obama administration's strategies extend U.S. military reach beyond practical limits—limits that Mitt Romney, if elected, plans to strain still further. But the military has come up with an elegant solution: Strategically and environmentally, a U.S. military powered by biofuels could be a 21st century game-changer that ends the oil wars and drains Big Oil's political dominance.

That is a real possibility. It is also possible that, walking a map bigger than a basketball court, our commanders will bump into one another indefinitely, attempting to defend an indefensible strategy.

#### AND, it reduces CO2

Alic 12 [Jen Alic “4 Biofuels That Don't Take Food Off People's Tables,” Oilprice.com Published: Wednesday, 12 Sep 2012 | 3:53 PM ET, pg. http://tinyurl.com/d4pmjqm

Algae: Growing on Us  
Algae produces some carbon dioxide when burned, but it takes the same carbon dioxide in to grow. So when algae farms grow massive quantities to be turned into biofuels, the end result is that they actually suck greenhouse gas out of the air. It also has other advantages over biofuels from corn or soybeans, in that it does not require soil or fresh water to grow. It also has the potential to produce more energy per hectare than any land crop.

### Hydrogen

#### Zero chance of hydrogen-based military fuels being viable for decades

James T. Bartis 11, senior policy researcher at the RAND Corporation, and Lawrence Van Bibber, researcher, RAND Corporation, 2011, “Alternative Fuels for Military Applications,” http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND\_MG969.pdf

Nuclear, solar, and wind energy technologies may offer important benefits in the production of military, as well as civilian, alternative fuels. Nuclear, wind, and solar energy offer electric power without emitting appreciable amounts of greenhouse gases. For the near- and mid-term alternative fuel options (i.e., hydrotreated oil from animal fats and vegetable oils, and FT liquids), electric power is not an important input to the production process. Electric power, however, can be used to produce hydrogen via electrolysis of water, and hydrogen is an important input. For example, hydrogen produced from nuclear or renewable power can be used to hydrotreat renewable oils produced from seed crops. If sufficient hydrogen is available, nearly all of the carbon in the coal or biomass feedstock to a Fischer-Tropsch plant would end up in the fuel products and not in the air, eliminating the need to capture and sequester carbon dioxide. In addition, the use of hydrogen in an FT plant could nearly triple yields of liquid fuels.

For hydrotreated oil from algae, a longer-term option, climate-friendly sources of electric power could be used directly in the processes of cultivating the algae and extracting the oil, because electricity is required for mixing, circulation, and management of water and nutrients.

But the beneficial hydrogen derived from nuclear, solar, and wind energy technologies is not an economically viable option over the near- to mid-term. The trade-off is cost: Producing hydrogen from clean sources in capacities large enough to gain the benefits described above requires very large amounts of generating capacity and would significantly increase the costs of producing liquid fuels. Considering the importance of reducing greenhouse gas emissions during the process of generating electric power for traditional uses, investments in climate-friendly power generation are already likely to be very high over the coming decades. In this context, the additional investment required to construct large amounts of generating capacity dedicated to producing alternative fuels is probably not feasible. For at least the next two decades, it is highly unlikely that hydrogen from nuclear or renewable electric-generating technologies will be a commercially viable option for producing alternative fuels.

#### Empirical studies prove the navy is not capable of deterring threats

Daniel 2 [Donald C.F. “The Future of American Naval Power: Propositions and Recommendations,” Globalization and American Power. Chapter 27. Institute for National Strategic Studies National Defense University, http://www.ndu.edu/inss/Books/Books\_2002/Globalization\_and\_Maritime\_Power\_Dec\_02/0 1\_toc.htm]

In sum, there would seem to be a special role for the U.S. Navy in contingency response along littorals, but, outside the context of a specific crisis, constant day-to-day presence does not do much to deter unwanted behavior. Thus, it would seem a raising of false expectations to argue, for example, that the “gapping of aircraft carriers in areas of potential crisis is an invitation to disaster—and therefore represents culpable negligence on the part of America’s defense decision-makers.”33 In the early 1960s, the United States maintained three aircraft carrier battlegroups in the Mediterranean Sea but later gradually found that it needed to scale back. Currently, a single battlegroup operates there for less than 9 months of the year on average. This is a significant reduction, but no one can prove that the Mediterranean region became less stable. Conversely, the Navy began to maintain a regular presence in the Arabian Gulf in 1979, but this did not prevent Iran or Iraq from attacking ships during their war. In the 1980s, attacks generally increased in number over the 8 years of the war. As for deterring the initiation of a crisis in the first place, it is essentially impossible for an outsider to prove that such deterrence was successful except in the rare case in which a deterred party admits that he was deterred and states the reasons. Adam Siegel, John Arquilla, Paul Huth, Paul Davis, and a Rutgers Center for Global Security and Democracy team led by Edward Rhodes have each attempted to study the effects of forward presence and general deterrence. The deficiency of such study is always in making the definitive link between them. The majority of these studies suggest that “[h]istorically seapower has not done well as a deterrent” in preventing the outbreak of conflicts, principally because land-based powers not dependent on overseas trade are relatively “insensitive” to the operations of naval forces.

#### UUV’s in use now

Martin 12—Antoine Martin is an industry consultant and principal of Unmanned Vehicles Systems Consulting LLC. His research reports are published by Market Intel Group LLC [“U.S. Expands Use Of Underwater Unmanned Vehicles,” April 2012, http://www.nationaldefensemagazine.org/archive/2012/April/Pages/USExpandsUseOfUnderwaterUnmannedVehicles.aspx]

There are today an estimated 450 underwater unmanned vehicles in the U.S. military inventory.

They range in size, although most are small UUVs that are aimed at gathering oceanographic data, such as glider or hand-launched drones used to survey the seafloor in search of mines.

One of the more significant recent procurements has been a contract award to Bluefin Robotics — as a subcontractor to General Dynamics — to provide countermeasure systems that can detect and identify undersea mines in cluttered environments for the Navy’s Littoral Combat Ships.

The Office of Naval Research, meanwhile, has received proposals for a “large displacement UUV” to navigate the seas up to 60 days at a time. The craft would be launched and recovered by surface combatant ships and submarines.

And the Navy’s Undersea Defensive Warfare Systems Program Office is procuring the SeaFox mine disposal systems from Atlas North America, the U.S. subsidiary of Germany’s Atlas Elektronik Group, a supplier of maritime defense electronics.

The Navy released a UUV “master plan” in 2004, and it is still relevant. Nine missions are identified: Intelligence, surveillance and reconnaissance; mine countermeasures; anti-submarine warfare; inspection/identification; oceanography; communication/navigation network nodes; payload delivery; information operations; and time-critical strike.

Several recommendations from the master plan have been initiated. Among them is the development of four UUV classes including one that weighs less than 100 pounds, a lightweight vehicle at 500 pounds, a 3,000-pound heavy weight submersible and large submarine at around 20,000 pounds.

The plan also called for the development of standards and modularity, increased experimentation in the technology, coordination with other unmanned vehicle programs, and the fielding of systems in the fleet.

Those recommendations have not been executed yet, which might explain why an updated roadmap has not been made public.

One reason for the delays is there is no major threat at hand for which underwater drones are needed, such as roadside bombs that drove the rapid procurement of ground robots, or the demands for intelligence gathering that fueled purchases of aerial surveillance drones.

The Defense Department’s “Unmanned Systems Integrated Roadmap Fiscal Years 2011-2036” said that all systems will continue to expand their roles and numbers across the U.S. military. Unmanned underwater vehicles are folded into the unmanned maritime section, which points to their role of working in tandem with unmanned surface vehicles.

Priority missions are mine detection and maritime security.

The Office of Naval Research’s “Science & Strategy Plan 2011” projects continued development of unmanned systems. The priorities are increasing their endurance and power, and becoming more reliable in harsh maritime environments. These goals are particularly challenging as sensitive electronics must operate for days or weeks at sea. The robots are subjected to extreme pressure, corrosion, waves and currents. Poorly integrated technology does not survive long under these circumstances.

ONR will seek to develop underwater distributive networks, through the use of unmanned drones, which will in turn provide information on perception and environmental changes. Increasing the perception and intelligence of UUVs are recurring themes in Defense Department documents.

A major hurdle for the technology is the launch and recovery from other vehicles because of low speed, relatively low endurance and short-range communication. Underwater robots are covert by nature because of their small size and low sonar signature. If the host platform has to alter its operation to launch and recover one, it can be put at risk. This is especially sensitive when the launching and recovering is done from submarines. With limited launch tubes, trading torpedoes for UUVs is a tough choice.

The most immediate launch and recovery technological advances are found in unmanned surface vehicles. They complement and augment unmanned underwater vehicles and manned vessels, especially when it comes to clearing mine fields. Traditional mine hunting is time consuming, dangerous and costly, and UUVs are proven tools to survey mines. With mine-hunting vessels reaching the end of their lives, unmanned surface vehicles can do the job from non-dedicated mine hunter vessels. They will relay information by standing close to their underwater counterpart while keeping the manned platform away from the minefield. The surface vehicle could deploy one or more drones. Another option is to use robotic boats to magnetically trigger the mines, a method known as mine sweeping.

Traditional mid-size UUVs are stable and can endure more than a day underwater, but by design are prevented from moving in a cluttered environment, navigating against currents and operating in confined spaces. For that, new designs are needed.

A number of new designs of small underwater drones are expected in the coming years. The Office of Naval Research has been sponsoring new breeds of vehicles, such as the Ghost Swimmer from Boston Engineering, a scaled-down version based on the body of tuna, which is able to make sharp turns and thrusts against currents with its large tail. ONR has also sponsored iRobot Maritime for the concept of a sonobuoy UUV. It is dropped from the sonobuoy tubes of an aircraft, and navigates for a few hours instead of being dropped and left at the mercy of the currents. The ability of this self-propelled sonobuoy would enhance its role to detect submarines. Perhaps glider UUVs will end up becoming a new underwater robot class. “There will probably be some evolution of those platforms for greater payload or endurance capabilities and for the vehicle, itself,” said David P. Kelly, president and CEO of Bluefin Robotics, based in Quincy, Mass.

Unmanned aircraft are being increasingly used to carry weapons, or employed as kamikaze weapons. This provides a glimpse as to what to expect on the underwater side.

When weaponized, underwater robots will be able to act offensively and use their covertness to intervene in operations. The large-displacement UUV program intends to use the platform as a launch for underwater weapons. If the vehicles that are used to disable mines carry an explosive charge, what prevents them from going to a specified point to act as a mine? As torpedoes become smarter, one can see those two technologies being combined. Unmanned vehicles will also be able to act as torpedo decoys.

Synthetic aperture sonar and other sensors that give greater resolution will be a sought-after technology. The Defense Department also will seek advances in propulsion, energy for both storage and usage, as well as advanced autonomy. New deployable payloads such as distributed network sensors will first be developed as stand-alone projects, which will then be incorporated in UUV programs — such as the “persistent maritime surveillance demonstration” project to be integrated in the large-displacement program.

Increasing the endurance of the technology has become a pressing priority in the U.S. Navy. Former Chief of Naval Operations Adm. Gary Roughead said he wanted to dedicate half of UUV research-and-development money to find solutions that improve their endurance. This is a prerequisite to augmenting their functions for intelligence gathering and offensive roles. If the launch and recovery platforms need to stay within their current endurance range — 20 hours is typical for today’s submersible robots — it puts the manned platforms fairly close to the operating zone.

Power is also needed to navigate in shallow waters, where currents are strong. The large displacement UUV is an ambitious program that will take significant resources to make it a reality. The goal is to deliver the first test vehicles in 2016, and to deploy a squadron of large vehicles by 2020.

Other opportunities are in inertial navigation systems, which are currently too expensive for small UUVs. Underwater endurance for large vehicles will require submarine-like navigational accuracy. Sensor advances such as sonar are as important as electro-optical sensors are to remotely piloted aircraft. There will always be a need for better resolution, smaller form factor, and lesser power consumption in the processing of sonar data.

Companies that are seeking to enter the market should find opportunities in port security missions. There will also be more teaming among established companies. Battelle Memorial Institute, The Columbia Group, and Bluefin Robotics are developing a large diameter UUV test bed that is called Proteus. As budgets become tighter, few firms will invest their own capital to only serve the Navy, since they cannot assess the risks of whether their products will sell.

There is a large commercial market for the technology in the offshore oil and gas industries. Defense firms such as The Boeing Co. and Lockheed Martin Corp. have attempted to get return on corporate research and development investments by selling to both defense and commercial markets. This “market cross” of UUVs seems to be especially visible now that the defense budget is on the decline, and that natural resources need to be extracted in more remote areas such as the poles or in deep water.

A similar pattern is observed with fuel cell companies that are targeting the transportation and underwater-vehicle industries. In addition, there will be more mature products from foreign companies being marketed in the United States, more often through a joint venture, subsidiary, and almost always by working with a prime contractor. Conversely, U.S. firms are eager to sell overseas, but the navigation systems and autonomy of the technology presents export hurdles when it comes to foreign-sales regulations.

The Navy’s Space and Naval Warfare Systems Command Systems Center Pacific, based in San Diego, is the funding and executing office of two expected programs. The center is seeking improved automation technologies, which is a way to gradually remove humans from the operation of unmanned systems. This satisfies two goals: to develop technology that will cut costs by removing expensive trained persons; and to take a measured and cautious approach to autonomy. Bluefin Robotics, for instance, acquired the intellectual property and expertise of Hawkes Remotes remotely operated vehicles as a way to address this problem.

The most immediate need is for unmanned underwater vehicles to reduce human and material risks. In that vein, most of the procurement funding is likely to be allocated to mine countermeasures. In the mid and long term, “UUVs will be increasingly used as a force multiplier or to extend the reach in range and capabilities of manned assets,” said David Olszewski of Atlas North America.

“Shallow water infrastructure and ports and harbors facilities are subject to asymmetric threats,” said Kelly, of Bluefin. The company is offering the Bluefin-9 UUV to survey ship lanes and map the underwater environment, and a hovering submersible to inspect ship hulls in ports.

The Pentagon’s budget request for unmanned maritime systems (including unmanned surface) research, development, testing, procurement, operations and maintenance is approximately $641 million for the 2011 to 2015 period.

### 1NC Grid

#### Their solvency ev is industry cheerleading—diverse distributed sources solve better.

Lovins 10—Chair and Chief Scientist @ Rocky Mountain Institute [Amory B. Lovins (Experimental Physicist and Former professor of Advanced Energy Efficiency @ Stanford University) , “Lovins addresses New Nuclear Power for DOD (Q&A 3 of 3)” DOD Energy Blog, Wednesday, May 12, 2010, http://dodenergy.blogspot.com/2010/05/lovins-addresses-new-nuclear-power-for\_12.html]

Question 3: Are there any points in particular you'd like to call out re: the on nuclear energy generation potential for DOD?

ABL: Yes. Two major technical task forces evaluating DoD's energy options have carefully considered the various nuclear technologies at diverse scales that were vigorously suggested to them. Both pointedly declined to recommend military pursuit of any nuclear technology to power facilities. My 1Q2010 Joint Force Quarterly (JFQ) article "DoD's Energy Challenge as Strategic Opportunity" explains, with footnotes omitted:

"Nuclear power is sometimes suggested for land installations or even expeditionary forces, typically without discussing cost (grossly uncompetitive), modern renewables (typically much cheaper), operational reliability (usually needing 100% backup), or security. For these and other reasons, the 2008 DSB and JASON task forces didn’t endorse this option."

Some of the task forces' reasons are obvious. For isolated or grid-connected fixed installations, any mini-reactor would require 100% backup, as analysis of a Toshiba ~10-MWe unit proposed for the fly-in village of Galena, Alaska confirmed. Moreover, its economics would be dreadful. Unconservatively assuming the same $2,500/KWe capital cost at 10 MWe as at 50 MWe, a found that if the reactor (with capex upwards of 9¢/KWh) and its licensing (roughly comparable or larger under current rules), its installation and removal, and its decommissioning were all free, if O&M costs were half Toshiba's estimate for the 50-MWe design, and if NRC dropped the required security staffing from 34 to 4 guards, then the ~5–14¢/KWh operating cost alone might compete with diesel's, burning costly barged-in fuel; but to make even this work, the study had to make many absurd assumptions. I'm unaware of any remote installation for which a mini-reactor can be shown to be competitive.

Nor, inherently, can a mini-reactor's security of supply approach that of a properly designed network of diverse and distributed sources. The principles of resilient design, summarized in Ch. 13 of " Brittle Power", are no more compatible with a single power source than are the principles of least cost . Nuclear power does not earn a place in a "diversified" DOD energy supply portfolio simply by being different, any more than a financial portfolio should include one of everything on offer. Rather, a balanced portfolio includes only assets with a clear risk-and-return rationale.

The Naval situation is different, but not completely, as my JFQ article continued:

"After vast investment in hardware and a unique technical culture, nuclear propulsion has proven its merit in submarines and aircraft carriers. In 2006–09, Congressional enthusiasts announced supposed Naval Sea Systems Command (NAVSEA) findings that nuclear propulsion in new medium surface combatants could beat $70/bbl oil. However, the 2008 DSB task force discovered that NAVSEA’s actual finding ($75–225/bbl) had improperly assumed a zero real discount rate. A 3%/y real discount rate yielded a $132–345/bbl break even oil price; NAVSEA didn’t respond to requests to test the 7%/year real discount rate OMB probably mandates. Presumably the Secretary of Defense will reject this option and focus resources on making ships optimally efficient."

In short, as my JFQ article concluded, "The 2008 DSB and JASON studies are redirecting the military energy conversation from exotic, speculative, and often inappropriate supplies to efficient use, which makes autonomous in-theater supply important and often cost-effective...."

It's therefore disappointing to see that some in the Building, apparently unaware of the full competitive landscape, are now wasting still more time and money on nuclear power after both of DOD's advisory bodies rejected it for many compelling reasons. I hope the Congressionally mandated report the DOD Energy Blog mentions (4th paragraph: here), due 1 Jun 2010, will dig deeper than the current cheer-leading—originating ultimately from vendors desperate to find a cost-insensitive customer for technologies already rejected by the marketplace.

There you have it, sports fans. Amory's systems-based, economics-grounded response has substantially squelched my recently burgeoning enthusiasm for a new nuclear component to DOD's energy portfolio. I have to check my own cheer-leading tendencies sometimes. That said, if there's a man or woman among you who wants to attempt a public retort to these arguments, be my guest ... and good luck, you're going to need it!

#### Reactors are still in the research stage—they are decades away from being deployable.

Anderson 10—Senior Engineer in the Integrated Applications Office @ National Renewable Energy Laboratory [Kate Anderson “SMALL NUCLEAR REACTORS,” White Paper, February 1, 2010]

Despite these benefits, small reactors have many challenges to overcome. A few designs are in the engineering phase and could be commercialized within a decade, but most designs are still in the research stage, and will require extensive engineering and demonstration before they are ready to be commercialized. The unique design features that make small reactors appealing, like passive safety systems and integral designs, require non-traditional components that will need to be fully developed, tested, and demonstrated. Additional developments in instrumentation and control will be needed for most small reactor designs. Designs that depart from the traditional light water reactortechnology may required significant material and fuel qualification as well, which could take 10-12 years or more.9 pg. 3-4

#### US decline will not spark wars.

MacDonald & Parent 11—Professor of Political Science at Williams College & Professor of Political Science at University of Miami [Paul K. MacDonald & Joseph M. Parent, “Graceful Decline? The Surprising Success of Great Power Retrenchment,” International Security, Vol. 35, No. 4 (Spring 2011), pp. 7–44]

Our findings are directly relevant to what appears to be an impending great power transition between China and the United States. Estimates of economic performance vary, but most observers expect Chinese GDP to surpass U.S. GDP sometime in the next decade or two. 91 This prospect has generated considerable concern. Many scholars foresee major conflict during a Sino-U.S. ordinal transition. Echoing Gilpin and Copeland, John Mearsheimer sees the crux of the issue as irreconcilable goals: China wants to be America’s superior and the United States wants no peer competitors. In his words, “[N]o amount of goodwill can ameliorate the intense security competition that sets in when an aspiring hegemon appears in Eurasia.” 92

Contrary to these predictions, our analysis suggests some grounds for optimism. Based on the historical track record of great powers facing acute relative decline, the United States should be able to retrench in the coming decades. In the next few years, the United States is ripe to overhaul its military, shift burdens to its allies, and work to decrease costly international commitments. It is likely to initiate and become embroiled in fewer militarized disputes than the average great power and to settle these disputes more amicably. Some might view this prospect with apprehension, fearing the steady erosion of U.S. credibility. Yet our analysis suggests that retrenchment need not signal weakness. Holding on to exposed and expensive commitments simply for the sake of one’s reputation is a greater geopolitical gamble than withdrawing to cheaper, more defensible frontiers.

Some observers might dispute our conclusions, arguing that hegemonic transitions are more conflict prone than other moments of acute relative decline. We counter that there are deductive and empirical reasons to doubt this argument. Theoretically, hegemonic powers should actually find it easier to manage acute relative decline. Fallen hegemons still have formidable capability, which threatens grave harm to any state that tries to cross them. Further, they are no longer the top target for balancing coalitions, and recovering hegemons may be influential because they can play a pivotal role in alliance formation. In addition, hegemonic powers, almost by definition, possess more extensive overseas commitments; they should be able to more readily identify and eliminate extraneous burdens without exposing vulnerabilities or exciting domestic populations.

We believe the empirical record supports these conclusions. In particular, periods of hegemonic transition do not appear more conflict prone than those of acute decline. The last reversal at the pinnacle of power was the AngloAmerican transition, which took place around 1872 and was resolved without armed confrontation. The tenor of that transition may have been influenced by a number of factors: both states were democratic maritime empires, the United States was slowly emerging from the Civil War, and Great Britain could likely coast on a large lead in domestic capital stock. Although China and the United States differ in regime type, similar factors may work to cushion the impending Sino-American transition. Both are large, relatively secure continental great powers, a fact that mitigates potential geopolitical competition. 93 China faces a variety of domestic political challenges, including strains among rival regions, which may complicate its ability to sustain its economic performance or engage in foreign policy adventurism. 94

Most important, the United States is not in free fall. Extrapolating the data into the future, we anticipate the United States will experience a “moderate” decline, losing from 2 to 4 percent of its share of great power GDP in the five years after being surpassed by China sometime in the next decade or two. 95 Given the relatively gradual rate of U.S. decline relative to China, the incentives for either side to run risks by courting conflict are minimal. The United States would still possess upwards of a third of the share of great power GDP, and would have little to gain from provoking a crisis over a peripheral issue. Conversely, China has few incentives to exploit U.S. weakness. 96 Given the importance of the U.S. market to the Chinese economy, in addition to the critical role played by the dollar as a global reserve currency, it is unclear how Beijing could hope to consolidate or expand its increasingly advantageous position through direct confrontation. In short, the United States should be able to reduce its foreign policy commitments in East Asia in the coming decades without inviting Chinese expansionism. Indeed, there is evidence that a policy of retrenchment could reap potential benefits. The drawdown and repositioning of U.S. troops in South Korea, for example, rather than fostering instability, has resulted in an improvement in the occasionally strained relationship between Washington and Seoul. 97 U.S. moderation on Taiwan, rather than encouraging hard-liners in Beijing, resulted in an improvement in cross-strait relations and reassured U.S. allies that Washington would not inadvertently drag them into a Sino-U.S. conflict. 98 Moreover, Washington’s support for the development of multilateral security institutions, rather than harming bilateral alliances, could work to enhance U.S. prestige while embedding China within a more transparent regional order. 99 A policy of gradual retrenchment need not undermine the credibility of U.S. alliance commitments or unleash destabilizing regional security dilemmas. Indeed, even if Beijing harbored revisionist intent, it is unclear that China will have the force projection capabilities necessary to take and hold additional territory. 100 By incrementally shifting burdens to regional allies and multilateral institutions, the United States can strengthen the credibility of its core commitments while accommodating the interests of a rising China. Not least among the benefits of retrenchment is that it helps alleviate an unsustainable financial position. Immense forward deployments will only exacerbate U.S. grand strategic problems and risk unnecessary clashes. 101

### Warming

#### Warming is slowing because of sulfur aerosols.

[Louise Gray](http://www.telegraph.co.uk/journalists/louise-gray/), 11/26/2010. Environment Correspondent for the Telegraph. “Global warming has slowed because of pollution,” The Telegraph, http://www.telegraph.co.uk/earth/environment/climatechange/8159991/Global-warming-has-slowed-because-of-pollution.html.

The latest figures from more than 20 scientific institutions around the world show that global temperatures are higher than ever. ¶ However the gradual rise in temperatures over the last 30 years is slowing slightly. Global warming since the 1970s has been 0.16C (0.3F) but the rise in the last decade was just 0.05C (0.09F), according to the Met Office. ¶ Sceptics claim this as evidence man made global warming is a myth. ¶ But in a new report the Met Office said the reduced rate of warming can be easily explained by a number of factors. And indeed the true rate of warming caused by man made greenhouse gases could be greater than ever. ¶ One of the major factors is pollution over Asia, where the huge growth in coal-fired power stations mean aerosols like sulphur are being pumped into the air. This reflects sunlight, cooling the land surface temperature. ¶ Dr Vicky Pope, Head of Climate Change Advice, said pollution may be causing a cooling effect. ¶ “A possible increase in aerosol emissions from Asia in the last decade may have contributed to substantially to the recent slowdown,” she said. “Aerosols cool the climate by reflecting the sunlight.”

#### Reducing coal emissions would trigger rapid warming due to reduced aerosol cooling.

N. Chalmers et al, 1,2 E. J. Highwood,1 E. Hawkins,1,2 R. Sutton,1,2 L. J. Wilcox1, 8/21/2012. 1Department of Meteorology, University of Reading, Reading, U.K.; 2NCAS-Climate, University of Reading, Reading, U.K. “Aerosol contribution to the rapid warming of 2 near-term climate under RCP 2.6,” Manuscript, accepted for publication in Geophysical Research Letters, www.met.reading.ac.uk/~ed/home/chalmers\_etal\_2012\_accepted.pdf.

\*\*\*RCP="Representative Concentration Pathways." These are IPCC scenarios designed for use in climate models, that essentially project different scenarios for changes (or lack thereof) in global emissions. RCP2.6 is a scenario of significant emissions reductions. RCP4.5 is the baseline "business as usual" scenario.

\*\*\*CDNC=cloud droplet number concentration

The period during which global mean surface temperature in RCP2.6 is higher than in 130 RCP4.5, discussed in the previous section, is directly related to a rapid increase in global 131 mean surface temperature in RCP2.6, between around 2010 and around 2025 (Figure 1a). 132 In this section we investigate the causes of this rapid warming, and relate this event to 133 the comparison with RCP4.5. Figure 3 shows maps of the differences between the 10 year 134 means before and after the rapid warming. In this case a positive value indicates a larger 135 value after the sudden warming identified in Figure 1.¶ 136 As expected, there is a large reduction in sulphate load, and corresponding decrease 137 in CDNC over most of the northern hemisphere, consistent with a change in the indirect 138 aerosol effect. An increase in the effective radius is also seen (not shown). This reduces 139 the optical depth of the clouds when they are present, meaning more downward shortwave 140 flux is transmitted to the surface. There is also a prominent decrease in cloud fraction over 141 the subtropical northeastern Pacific Ocean which could be a consequence of the impact 142 of reduced sulphate aerosol on cloud lifetime. Lu et al. [2009] show that drizzle rate from 143 clouds in this region is indeed inversely related to aerosol concentration. Kloster et al. 144 [2010] also suggested that a change in cloud water path in their simulations with aggres-¶ 145 sive aerosol reductions resulted from enhanced drizzle formation. We hypothesise that 146 the localised nature of this feature by comparison with the sulphate and CDNC change 147 is due to the cloud in this region being particularly sensitive to a change in aerosol. Cli- 148 matologically, this region is a transition zone between open and closed mesoscale cellular 149 convection [Rosenfeld et al., 2011], aerosol concentrations being lower in the open celled 150 regions [Woods et al., 2011]. Although the details of these processes are unlikely to be 151 represented explicitly in global models, the localised strong decrease in cloud fraction in 152 the northeastern Pacific ocean would be consistent with a change in cloud regime driven 153 by decreased aerosol. Other regions show increases in cloud fraction, which cannot readily 154 be explained as a direct response to the decrease in sulphate load. It is likely that instead 155 these reflect non-local adjustments of the coupled ocean-atmosphere system in response 156 to the change in forcing.¶ 157 Figure 3 also shows the difference in surface shortwave flux (panel d), surface air tem- 158 perature (panel e), and global energy balance (panel f). The predicted increase in surface 159 downward shortwave radiation is seen in the global mean and particularly in the regions 160 of decreased cloud fraction and sulphate load. A negative anomaly in surface SW is co- 161 located with the positive cloud fraction changes. The pattern of surface air temperature 162 change shows large warming over the northern continents and the Arctic, and also a local 163 maximum over the subtropical northeastern Pacific coincident with the region of reduced 164 cloud fraction. The same localised pattern appears in all the simulations of Kloster et al. 165 [2010] that include aerosol reductions, but is absent from their simulations considering 166 only future changes in greenhouse gases.¶ 167 The surface energy budget shows the expected increases in downward shortwave radia- 168 tion. In addition there is an increase in downward longwave radiation in response to the 169 increase in GHG concentrations between the two periods, and also reflecting changes in 170 clouds. The warming due to increases in net surface downward radiation is balanced by 171 increases in latent and (over land) sensible heat fluxes.¶ 4. Discussion and Conclusions¶ 172 In this study we have compared projections of near term climate in the HadGEM2-ES 173 model under RCP4.5 and RCP2.6. GHG forcing under these scenarios is almost identical 174 until 2020, and then declines in RCP2.6 relative to RCP4.5. However, between 2018 and 175 2037 global annual mean surface air temperature is warmer under RCP2.6. The start of 176 this period **is characterised by a period of particularly rapid warming**.¶ 177 Our results provide compelling evidence that the warming in RCP2.6 is a result of a 178 rapid decrease in sulphate aerosol load. This decrease is caused by a decrease in sulphur 179 emissions in RCP2.6, **as a result of the rapid decrease in coal use** needed to reduce GHG 180 emissions. Thus our results highlight the difficulty of reducing the rate of global warming 181 in the near term in this model, even under extreme scenarios for reducing GHG emissions, 182 and is consistent with previous simulations by Wigley [1991] and Johns et al. [2011].

#### That would double warming and quickly take us above the “2-degree threshold.”

Dr Andrew Glikson, 6/6/2011. Earth and paleoclimate science, Australian National University. “Global warming above 2° so far mitigated by accidental geo-engineering,” Crikey, http://www.crikey.com.au/2011/06/06/global-warming-above-2%C2%B0-so-far-mitigated-by-accidental-geo-engineering/.

According to NASA’s Goddard Institute of Space Science climate reports, global warming is already committed to a rise above two degrees. The magical two degrees ceiling determined by governments **is only holding thanks to effective, if unintended, geo-engineering by sulphur dioxide** emitted from industry, holding global warming to about half of what it would be otherwise. Recent publications by Hansen and his [research](http://www.columbia.edu/%7Ejeh1/mailings/2011/20110415_EnergyImbalancePaper.pdf) [group](http://arxiv.org/ftp/arxiv/papers/1105/1105.0968.pdf) indicate the rise of atmospheric energy (heat) level due to greenhouse gases and land clearing are committed to +2.3 degrees (+3.1 Watt/m2), currently mitigated by the transient effect of sulphur aerosols and the cooling effect of the oceans. Sulphur dioxide is emanated from coal, oil and the processing of minerals (breakdown of sulphides to produce copper, zinc, lead and so on), and from other chemical industries. It combines with water in the atmosphere to produce sulphuric acid, which (being heavier than air) condenses and settles to the ground within a few years. Aerosols stay in the atmosphere and stratosphere on time scales ranging from hours to days and to years, depending on their grain size, chemistry and height in the atmosphere and on the physical state and temperature of the atmosphere at different altitudes and latitudes. The aerosols are short-lived, i.e. on time scales of up to a few years, but since they are continuously emitted from industry the overall level is increasing as burning of fossil fuels is rising. The continuing emission of sulphur aerosols in effect constitute a global geo-engineering process without which the atmosphere would warm by another 1.2 degrees (1.6 Watt/m2) above the present level, **resulting in near-doubling of global warming** ([Figure 1](http://www.columbia.edu/%7Ejeh1/mailings/2011/20110415_EnergyImbalancePaper.pdf)).

#### 1. Replacing every coal plant isn’t enough to solve—neither is the aff.

Rapier 12—Chief Technology Officer at Merica International—a Renewable Energy Company, Master’s in Chemical Engineering from Texas A&M University [March 15, 2012, Robert Rapier, Study: Eliminating Coal-Fired Power is Worth 0.2 Degrees in 100 Years, http://www.consumerenergyreport.com/2012/03/05/study-eliminating-coal-fired-power-is-worth-0-2-degrees-in-100-years/]

Who could have dreamed solving climate change would be so easy? A new paper in Environmental Research Letters called “Greenhouse gases, climate change and the transition from coal to low-carbon electricity” concludes that replacement of all of the world’s currently operating coal-fired power plants — which produce about 40% of the world’s electricity — and replacing them with renewable energy would have an impact of 0.2 degrees Celsius 100 years from now.

Cherry-Picking Conclusions According to One’s Viewpoint

However, a number of climate change websites took away a very different message than I took away from the paper. Here is Joe Romm’s view:

Bombshell: You Can’t Slow Projected Warming With Gas, You Need ‘Rapid and Massive Deployment’ of Zero-Carbon Power

I seem to recall another “bombshell” that he recently reported upon on the same theme: Natural Gas Bombshell: Switching From Coal to Gas Increases Warming for Decades, Has Minimal Benefit Even in 2100. I debunked that by showing that in that particular study, every possible alternative — including wind power, solar power, and even simply shutting down all of the coal plants — was projected to increase global warming in the short term: BOMBSHELL: Solar and Wind Power Would Speed Up, Not Reduce, Global Warming.

But Joe is back with the hyperbolic titles and exaggerations (which I get into below), and he missed the biggest story in the paper.

Coal and Sunlight-Reflecting Pollutants

The subject of Romm’s earlier “natural gas bombshell” was a paper written by Tom Wigley that concluded that shutting down coal-fired power plants would cause the global temperature to increase in the short term because of the loss of sunlight-reflecting pollutants.

In that particular paper, Dr. Wigley modeled what would happen if coal-fired power was replaced with natural gas. He did indeed project short-term warming in that scenario, yet it was a result of the air becoming cleaner and allowing sunlight through as the coal was phased out. Thus, the media really got that story wrong, which was not about a deficiency of natural gas, but rather about the peculiarity of burning coal — that the particulate emissions reflect sunlight. Those who fixated on natural gas as the culprit could have written the same story about solar power — which the study’s author confirmed for me. Hence, I made that my “Bombshell” to illustrate the point.

However, that particular study didn’t actually model the temperature impact of shutting down coal plants and replacing them with anything other than natural gas. So, I posed the following question to Dr. Wigley:

What does the graph look like in 2100 if all coal-fired plants were replaced with zero emission sources (as the idealized study)? I am just wondering what the potential actually is. Are we talking about 1 or 2 degrees lower? I just have no idea of the relative context.

We had several email exchanges over his paper, and he said that my questions were intriguing and he would look into them. I never heard back from him on that, but this new paper answers the question.

Shuttering All the World’s Coal Plants Wouldn’t Do Much

The authors of this newest study modeled the replacement of coal-fired power plants with either natural gas, coal with carbon capture and storage, hydropower, solar PV, solar thermal, wind power, or nuclear power. You can see from Joe Romm’s headline how the story is being spun, but let’s break it down in a more objective fashion.

The following graphic from the paper tells the story. Pay particular attention to the temperature scale.

The graphic indicates — as Tom Wigley’s previous paper indicated but which was only reported relative to natural gas — that in every single case, it doesn’t matter what coal-fired power plants are replaced with, the temperature is projected to increase for almost the next 40 years. This is true even in the baseline “Conservation” case, which involves merely idling the coal-fired plants and not replacing them with anything.

The paper projects that if coal-fired power plants continue to operate, the expected temperature rise relative to the baseline (i.e., relative to the expected temperature increase from other sources) in 50 years is 0.15 degrees C, and in 100 years is about 0.33 degrees C. If coal is phased out and replaced with natural gas, the relative 50 and 100 year temperature rise is projected to be 0.14 degrees C and 0.24 degrees C, respectively. So the paper shows slightly less warming when natural gas is used, which Climate Progress Tweeted as “Switch from coal to natural gas would have zero effect on global temperatures by 2100” and included a link to Joe’s “bombshell.” That is obviously an exaggeration, as the graphic clearly shows that the effect is not zero. If it was, the natural gas line would overlay the coal line.

Shocking Implications

One shocking implication from the paper was the projection that hydropower would be worse than coal for the next 60 years. The study’s authors cited methane emissions from organic matter buried under water as the reason for this apparent anomaly. But that’s not the really shocking thing about the study for me.

The most shocking conclusion was the magnitude of the numbers we are talking about. Even if you could in theory shut down all of the coal-fired power plants in the world and replace them with wind, solar, and hydropower — in 50 years the projected temperature is only one-twentieth of a degree C cooler than the base case of continuing to use coal. In 100 years, if I could replace all global coal-fired power plants with firm, renewable power — the temperature is only projected to be about 0.2 degrees cooler than under the coal base case. And the way this is being spun is that the 0.09 degree reduction from switching to natural gas is equivalent to an effect of “zero”, but the 0.2 degree reduction in hypothetically replacing everything with wind and solar power 100 years from now is significant. About the natural gas case, Romm literally said the 0.09 degree lower temperature in switching to natural gas means that “natural gas is a bridge fuel to nowhere”, but the 0.2 degree lower temperature in switching to renewables is “the world’s only plausible hope to avert catastrophic temperature rise.”

Nuclear & Natural Gas to the Rescue — But Most Environmentalists Hate Them

A big irony here is that there are only two power sources that are today capable of achieving the study’s conclusion that we must rapidly replace coal-fired power plants: Nuclear power and natural gas. If people really believe that we must urgently address this issue — and they don’t believe that the change from going to natural gas is enough — that leaves nuclear power as the only option capable of achieving a rapid replacement.

Bear in mind that this is for a global replacement of coal — most of which is used in Asia. Good luck trying to sell China and India on a 0.2 degree temperature difference in 100 years if they quickly abandon their coal-fired power plants and replace them with wind power.

Conclusion: Study is a Major Downer for Activists Battling Climate Change

To be honest, if I was devoting my life to fighting against the threat of climate change, this would be one of the most depressing papers I have ever read. If we could convince everyone in the world to shut down their coal-fired power plants — which we can’t — and replace them with renewable power — which isn’t available in quantities sufficient to replace coal-fired power — then by the end of my life there would still be no statistically significant temperature change to even be able to tell if my life’s work was successful.

But let’s be realistic, shall we? The people who are concerned about global warming have dug in their heels over natural gas, and they are generally opposed to nuclear power. Because of the sheer impossibility that we will rapidly replace coal with wind and solar power (especially since “we” is the world), then we will in all likelihood be left with the status quo. As I have said before, emissions are much higher in Asia Pacific than they are in the U.S. and Europe combined, and they are rising rapidly. Unless we can figure out a way to convince them to develop without fossil fuels — something no country has done — then global carbon emissions will continue to rise. This is why — even though I accept the science behind climate change — it isn’ t my focus. I just don’t see how the West can possibly do anything about it.

## \*\*\* 2NC

### AT: Webb

#### Webb is Canadian and means his distinctions on incentives don’t apply

MacNevin 93, Alex -Tax Evaluation Division – Federal Department of Finance, 31 Alta. L. Rev. 539

Not surprisingly, Mr. Webb's perspective is primarily legal in focus; he is concerned with what he views as deficiencies in legal structure and channels of legal authority and recourse. As an economist, I am not qualified to discuss the legal issues raised by Mr. Webb. However, his passing reference, in a related paper to be delivered at this conference, refers to the Auditor General's estimates that there are $41 billion and $28 billion in, respectively, direct expenditure incentives and tax expenditure incentives.1 Incentives are thus ultimately about money -- that is, who gets it, why, how, how much, what is the effect and how is this accounted for -- and therefore have important economic as well as legal dimensions. While Mr. Webb's paper deals with both expenditure and tax incentives, my comments concentrate on the latter, with which I am most familiar. II. THE IDENTIFICATION OF TAX INCENTIVES One fundamental problem with respect to accountability in the area of taxation arises because of difficulties in defining what is or is not a tax expenditure or a tax incentive. A central aspect of accountability relates to the seemingly simple basic requirement for documenting the amounts of money foregone through various incentives. Mr. Webb notes that information on the costs of tax incentives are reported only sporadically in tax expenditure accounts, the last of which was put out by the Minister of Finance in 1985. He also points out that tax incentives are removed from the normal budgeting and estimating procedures that apply to many other incentives on the expenditure side (which, incidentally, he views as generally deficient). The infrequent release of tax expenditures (or, as they were called in the 1985 document, selective tax measures) tables may in part reflect the absence of a legal requirement that they be produced on a regular basis.2 They also, however, reflect significant conceptual difficulties encountered in constructing such accounts as well as prevailing concerns about the extent of their usefulness, including their interpretation. Difficulties in this regard were highlighted in a 1988 conference on tax expenditures and accountability in taxation that was jointly sponsored by the Department of Finance and the John Deutsch Institute of Queen's University.3 In the opinion of many of the public finance experts who participated in the conference, tax expenditures often cannot easily be distinguished from structural parameters of the tax system. Identification of tax incentives necessitates comparison of the actual tax system with an ideal "benchmark" tax system. This is entirely different from the case of direct expenditures where no comparable reference base is required. One practical difficulty confronting tax expenditure accounting is that any view about what the tax base should be is essentially a value judgement and hence will vary from individual to individual. The result is that items which may be viewed as tax expenditures under one particular benchmark tax system may not be viewed as such under another benchmark. For example, tax deductions for retirement savings plans are a tax expenditure under an annual income tax benchmark, but are not tax expenditures under lifetime income tax or consumption tax benchmarks. Since the federal tax system contains a mixture of elements of all three of these tax regimes, considerable difficulties in identifying tax expenditures exist. Related additional complexities arise because an actual tax system can only approximate the desirable characteristics of any particular normative view as to what should be taxed. For example, while economists may be able to define fairly precisely what real economic income is over a particular period of time under an income tax base, it is impractical to design an income tax system that has the actual characteristics dictated by theory. The result of is that in some instances, it is not clear how a particular tax measure or group of related tax measures should be viewed under an actual tax system that is inevitably only an imperfect approximation of a chosen "benchmark" tax system.4 Many examples can be given to illustrate the difficulties that arise in this respect. For example, considerable uncertainty arises about how the various provisions relating to the taxation of capital gains should be treated for tax expenditure accounting purposes under an income tax regime that taxes nominal gains on a realization basis rather than real gains on an accrual basis. The integration of the personal and corporate income tax systems gives rise to other examples. Under a view that treats the integrated personal and corporated tax systems as the benchmark, the dividend tax credit is not a tax expenditure. Under one that treats the personal and corporate tax systems as separate benchmark systems, it is. The tax expenditure treatment of cash accounting for farmers and fishermen provides another example. Economists are uncomfortable on tax principle grounds with the deductibility of expenditures on inventory because such expenditures merely reflect the transfer of one asset (cash) into another asset (inventory). Accrual accounting rules, which are required of other types of businesses, effectively result in unsold inventories being added back into income at the end of the year so that no deduction in the year is permitted. Past tax expenditure accounts have identified cash accounting as a tax expenditure, although it is far from obvious that, at least for full-time farmers and fishermen, cash accounting on balance results in lower tax liabilities over time or that from their perspective it is anything more than a peculiar tax wrinkle. It is notable that there is no dollar estimate of the value of cash accounting in previous tax expenditure accounts. III. THE ACCOUNTABILITY OF TAX INCENTIVES One common theme that emerged from the conference on tax expenditures and accountability was that, in light of the many difficulties in identifying tax expenditures, it might be desirable to present tax expenditure information from the perspective of a number of different normative benchmark systems. This would highlight aspects of the tax system from these different perspectives. It would, however, achieve this at the cost of considerable added complexity in interpreting the accounts, particularly to users of the accounts who were not tax experts. There may, therefore, be somewhat of a conflict between the usefulness of tax expenditure accounts in their role as an instrument of tax analysis versus their role as an accountability instrument where clarity and simplicity of presentation and interpretation have high priority. It may be possible to strike a compromise by, for example, ensuring that tax expenditure accounts clearly identify the key tax measures that most reasonably could be substituted for direct expenditure programs. This would facilitate comparisons of tax expenditures data with those for comparable programs on the direct expenditure side in the Public Accounts and thereby permit a more complete assessment of the incentives and subsidies applying to particular sectors, geographical regions, and so on. Such an approach would foster the accountability objective of "functional equivalence" identified by Mr. Webb. Problems with compiling tax expenditures accounts are highlighted when the very structure of the tax system undergoes major changes, such as with the income tax reform of 1988 and with the introduction of the GST to replace the manufacturers sales tax. In such circumstances, presentation of tax expenditure information must be thoroughly reformulated to reflect the revised tax regimes and, indeed, the changing benchmark norms. This can give rise to problems of lack of continuity and comparability of data over time. As an additional practical matter, significant lags in the availability of taxation data may delay the release of tax expenditure tables that reflect the new regimes. There are two and three year lags for, respectively, personal income tax data and corporate income tax data. Delays in the availability of taxation data are particularly problematic since it is typically much more difficult to forecast the ultimate cost of tax incentives than is the case for direct expenditure incentives. The main reason for this is that tax incentives are almost always open-ended while direct expenditure incentives are typically subject to an overall budget constraint. The total cost of a tax incentive thus depends entirely on the usually difficult to predict take-up response of taxpayers, which can give rise to considerable uncertainty in budgeting.5 There are thus significant difficulties with tax expenditure analysis even as an accounting device for providing estimates of the cost of individual tax measures. Judged by the other criteria identified above they are substantially more deficient since they provide no insight whatsoever into the questions of who benefits from tax incentives, why, and what are their effects. Analytical techniques, (such as full evaluations) in addition to accounting techniques, are required in order to provide a complete picture of both the cost and the efficacy of tax measures. I would note, however, that the problems in identifying tax expenditures, particularly in an environment of changing tax structures or norms, make it difficult to systematically evaluate tax expenditures or incentives on a routine cyclical basis as is done for direct expenditure programs. The limitations of tax expenditures information naturally raise questions about the appropriate amount of scarce analytical resources that should be devoted to the preparation of tax expenditure tables, rather than to alternative or complementary tools of accountability such as in-depth studies of the rationale and cost-effectiveness of particular tax measures and related groupings of tax measures; irrespective of whether there is a consensus as to their tax expenditure status under any particular benchmark tax system. The Department of Finance has long wrestled with the practical difficulties and trade-offs involved in compiling tax expenditure data and other accountability information that is, on balance, most revealing with respect to the underlying structure of the tax system. The proceedings of the John Deutsch Conference indicate clearly that there are no easy solutions to the problems. IV. CONCLUSION As noted earlier, Mr. Webb also makes reference to the adequacy of current budgeting procedures for tax incentives. The problem of identifying and measuring tax incentives separately from the "normal" parameters of the tax system hints at the intimate relationship between tax expenditures or (tax incentives) policy and the more limited process of modifying and improving the tax system -- that is the strict design of tax policy. This latter process is a natural component of the government's routine budget procedures and is subject to well-known budget conventions. Procedures relating to the introduction or modification of tax incentives must therefore inevitably be conducted within that somewhat restrictive environment. Can improvements be made which reflect both the need for improved budgeting procedures for tax incentives and the unique environment in which tax measures are designed and modified? I am sure they can but I am considerably less sure that such procedures can be routinized through legislative structure or guidelines. In summary, I fully support the general thrust of Mr. Webb's paper of the need for improved structures and instruments of accountability. In my view, however, the pursuit of that objective must be tempered by recognition of the significant practical obstacles that arise because of the unique characteristics of tax incentives.

### DSIRE Prodict

#### Our definition comes from Database of State Incentives for Renewables and Efficiency—prefer that—it’s the most up to date & comprehensive source for incentives information.

Gouchoe 2k—North Carolina State University, National Renewable Energy Laboratory [Susan, December 2000, Local Government and Community Programs and Incentives for Renewable Energy— National Report, http://seg.fsu.edu/Library/casestudy%20of%20incentives.pdf]

DSIRE Project Overview

The Database of State Incentives for Renewable Energy (DSIRE) serves as the nation’s most¶ comprehensive source of information on the status of programs and incentives for renewable¶ energy. The database tracks these programs at the state, utility, local, and community level.¶ Established in 1995, DSIRE is an ongoing project of the Interstate Renewable Energy Council¶ (IREC) and is managed by the North Carolina Solar Center with funding from the U.S.¶ Department of Energy’s Office of Power Technologies.

The first three phases of the DSIRE project—surveys of state financial incentives, state¶ regulatory policies, and utility programs and incentives—have been completed. Information¶ from these databases has been published in three previous reports:

National Summary Report on State Financial Incentives for Renewable Energy (1997);

National Summary Report on State Programs and Regulatory Policies for Renewable Energy

(1998); and

National Summary Report on Utility Programs and Incentives for Renewable Energy (1999).¶ These reports summarize incentives, programs, and policies that promote active and passive¶ solar, photovoltaics, wind, biomass, alternative fuels, geothermal, hydropower, and waste¶ energy sources. Given the rapidly changing status of state activities, an updated report—¶ National Summary Report on State Financial and Regulatory Incentives for Renewable¶ Energy—has been produced concurrently with this report on local initiatives.¶ While reports serve as a snapshot of the status of incentives and programs, constant revisions¶ and additions to the database maintain DSIRE’s role as the most up-to-date, national¶ clearinghouse of information on incentives and programs for renewable energy. Through¶ DSIRE on Line, the DSIRE database is accessible via the web at:¶ http://www.ncsc.ncsu.edu/dsire.htm. In 2001, federal incentives will be added to the database,¶ thereby providing a complete and comprehensive database of renewable energy incentives at¶ all levels—national, state, and local.

IREC is a nonprofit consortium of state and local government renewable energy officials and¶ is uniquely situated to oversee the effort to compile information on state, local, and utility¶ incentives. IREC ensures that all information products produced are disseminated widely to¶ federal, state and local agencies, federal laboratories, and other appropriate audiences.¶ The primary subcontractor to IREC for the DSIRE project is the North Carolina Solar Center.¶ Established in 1988, the Solar Center is located in the College of Engineering at North¶ Carolina State University in Raleigh, NC and is sponsored by the State Energy Office in the¶ North Carolina Department of Administration. The Solar Center conducts programs in four¶ areas: policy analysis, research and commercialization, technical assistance and training, and¶ education and outreach.

### AT: Waxman

#### Waxman def is based on DOE order 5700.5

Waxman 98—Solicitor General of the US (Seth, Brief for the United States in Opposition for the US Supreme Court case HARBERT/LUMMUS AGRIFUELS PROJECTS, ET AL., PETITIONERS v. UNITED STATES OF AMERICA, http://www.justice.gov/osg/briefs/1998/0responses/98-0697.resp.opp.pdf]

2 On November 15, 1986, Keefe was delegated “the authority, with respect to actions valued at $50 million or less, to approve, execute, enter into, modify, administer, closeout, terminate and take any other necessary and appropriate action (collectively, ‘Actions’) with respect to Financial Incentive awards.” Pet. App. 68, 111-112. Citing DOE Order No. 5700.5 (Jan. 12, 1981), the delegation defines “Financial Incentives” as the authorized financial incentive programs of DOE, “including direct loans, loan guarantees, purchase agreements, price supports, guaranteed market agreements and any others which may evolve.” The delegation proceeds to state, “[h]owever, a separate prior written approval of any such action must be given by or concurred in by Keefe to accompany the action.” The delegation also states that its exercise “shall be governed by the rules and regulations of [DOE] and policies and procedures prescribed by the Secretary or his delegate(s).” Pet. App. 111-113.

#### That’s no longer statute

DOE 2k [5/8/00 “DOE N 251.35, Cancellation of Directives,” [https://www.directives.**doe**.gov/directives/0251.035-CNotice](https://www.directives.doe.gov/directives/0251.035-CNotice)]

Effective immediately the following directives are canceled:

• DOE Order 5484.1, ENVIRONMENTAL PROTECTION, SAFETY AND HEALTH PROTECTION INFORMATION REPORTING REQUIREMENTS, dated 2-24-81;

• DOE Order 1332.2, UNIFORM REPORTING SYSTEM FOR FEDERAL ASSISTANCE, dated 10-31-83;

• DOE Order 5700.5A, POLICY AND MANAGEMENT PROCEDURES FOR FINANCIAL INCENTIVE PROGRAMS, dated 6-8-92; and

• HQ 1325.1, ACTION COORDINATION AND TRACKING SYSTEM, dated 7-30-79.

### China

**1. Naval upgrades are slow and moderate**

Goldstein 11—Professor and Director of the China Maritime Studies Institute @ US Naval War College [Dr. Lyle J. Goldstein, “Resetting the US–China Security Relationship,” Survival | vol. 53 no. 2 | April–May 2011 | pp. 89–116

To be sure, Beijing has made some progress in key areas of military technology, but its naval building programme is moderate, not radical. China will not have a strategically significant aircraft-carrier force for at least another decade, and has taken a measured and rather unhurried approach to upgrading both its fleet of surface combatants and its amphibious attack ships. Significantly, China is still far from wielding a strong nuclear-submarine force. Instead, its major focus has been on building conventional submarines that are more oriented toward defensive operations in the Chinese littorals than on power-projection missions in blue water. Of course, the recent unveiling of the fifth-generation J-20 fighter, alongside many other advanced systems, adds additional evidence to an already long list of new capabilities that illustrate that China is quite capable of building sophisticated weaponry. Taking the long historical view, this should not be shocking, nor should Beijing’s determination to build armed forces commensurate with its new status. What has been truly shocking, again taking the long view, is how weak China has been for so long in the modern era – a major historical anomaly. Pg. 90-91

**2. Potential economic destruction deters war**

Creehan 12– Senior Editor of the SAIS Review of International Affairs [Sean Creehan, “Assessing the Risks of Conflict in the South China Sea,” SAIS Review, Volume 32, Number 1, Winter-Spring 2012, pp. 125-128

Regarding Secretary Clinton’s first requirement, the risk of actual closure of the South China Sea remains remote, as instability in the region would affect the entire global economy, raising the price of various goods and commodities. According to some estimates, for example, as much as 50 percent of global oil tanker shipments pass through the South China Sea— that represents more than three times the tanker traffic through the Suez Canal and over five times the tanker traffic through the Panama Canal.4 It is in no country’s interest to see instability there, least of all China’s, given the central economic importance of Chinese exports originating from the country’s major southern ports and energy imports coming through the South China Sea (annual U.S. trade passing through the Sea amounts to $1.2 trillion).5 Invoking the language of nuclear deterrence theory, disruption in these sea lanes implies mutually assured economic destruction, and that possibility should moderate the behavior of all participants. Furthermore, with the United States continuing to operate from a position of naval strength (or at least managing a broader alliance that collectively balances China’s naval presence in the future), the sea lanes will remain open. While small military disputes within such a balance of power are, of course, possible, the economic risks of extended conflict are so great that significant changes to the status quo are unlikely. Pg. 126

**3. No China war**

Goldstein 11 - Professor and Director of the China Maritime Studies Institute @ US Naval War College [Dr. Lyle J. Goldstein, “Resetting the US–China Security Relationship,” Survival | vol. 53 no. 2 | April–May 2011 | pp. 89–116

Weighed in the aggregate, China’s rise remains a peaceful process, and the record to date should engender significant confidence. Beijing has not resorted to a significant use of force against another state in more than three decades. Its deployments of troops as UN peacekeepers to hot spots such as Lebanon and the Democratic Republic of the Congo have played a helpful role, as have the counter-piracy operations of its fleet in the Gulf of Aden. When dealing with weak and occasionally unstable states on its borders, such as Kyrgyzstan or Tajikistan, Beijing has not resorted to military intervention, nor even flexed its military muscles to gain advantage. Chinese maritime claims, whether in the South or the East China seas, are generally being enforced by unarmed patrol cutters, a clear signal that Beijing does not seek escalation to a major crisis on these matters. Contrary to the perception that China’s senior military officers are all irreconcilable hawks, one influential People’s Liberation Army Navy (PLAN) admiral recently said in an interview, with reference to lessons learned from recent border negotiations on China’s periphery: ‘If there are never any concessions or compromises, there is simply no possibility of reaching a breakthrough in border negotiations.’2 pg. 90

### Ext Lovins—SMR not solve

#### They are overpromising performance in order to garner political support

Gholz 12—Senior advisor to the deputy assistant secretary of defense for manufacturing and industrial base policy [Eugene Gholz (Professor of Poli Sci @ University of Texas), “THE DYNAMICS OF MILITARY INNOVATION AND THE PROSPECTS FOR DEFENSE-LED ENERGY INNOVATION,” Energy Innovation at the Department of Defense: Assessing the Opportunities, March 2012]

Of course, military desire for a new technology is not sufficient by itself to get a program funded in the United States. ¶ Strong political support from key legislators has also long been a prerequisite for technological innovation. While an excess of pork barrel politics might trap the American military with old ¶ equipment built in the “right” congressional districts, even though it doesn’t meet soldiers’ true needs, most of the time we don’t get that excess. Instead, the military and the defense contractors learned to combine performance specifications with political logic: the best way to attract political support was to promise heroic feats of technological progress, because the way to justify procurement of a new system (and the politically attractive jobs that came with production) was to promise that the new system would substantially outperform the equipment in the current American arsenal, even if that previous generation of equipment was only recently purchased at great expense. The political logic simply compounds the military’s tendency for the technological optimism that creates such tremendous technology pull for military innovation. 90

In fact, Congress wouldn’t spend our tax dollars on the military without some political payoff, because national security offers a classic case of diffuse benefits (all citizens benefit ¶ whether they help pay the cost or not). 91 Military innovations’ political appeal—whether supported by ideology (e.g., the “religion” that supports missile defense), an idiosyncratic vision (e.g., Senator John Warner’s longtime interest in unmanned ¶ aerial vehicles, or UAVs), or the ability to feed defense dollars to companies in a legislator’s district (e.g., California legislators, ¶ widely perceived as antimilitary, voted for the B-1 bomber and ¶ the MX missile)—prevents the United States from underinvesting ¶ in technological opportunities.

#### They can’t make reliable projections about performance—you should dismiss their solvency claims.

Andres & Breetz 11—Professor of national Security Strategy @ National War College & Doctoral candidate in Political Science @ Massachusetts institute of technology [Richard B. Andres (Senior fellow and energy and environmental Security and Policy Chair in the Center for Strategic research @ National Defense University) & Hanna L. Breetz,“Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications,” Strategic Forum, February 2011]

The small size and newness of these reactor concepts ¶ have projected downsides as well. From a financial perspective, small reactors represent substantial losses in economies ¶ of scale. They are likely to be less economical domestic ¶ energy sources per kilowatt-hour than larger reactors—although at forward locations where liquid fuel used to power generators is more expensive, they may be more economical than traditional methods.¶ 24¶ Making reliable projections ¶ about these reactors’ economic and technical performance ¶ while they are still on paper is a significant challenge. Pg. 6-7

### Ext Anderson—NRC

#### The best case scenario puts deployment 15 years away and new tech always takes longer.

Anderson 10—Senior Engineer in the Integrated Applications Office @ National Renewable Energy Laboratory [Kate Anderson “SMALL NUCLEAR REACTORS,” White Paper, February 1, 2010]

While a few experimental prototypes have been built, commercialization of small nuclear reactors is still at least 5-10 years away. None of the designs under development have been certified by the Nuclear Regulatory Commission. The design certification process for traditional light water reactors typically takes 2-3 years, with an additional 2 years or longer for site licensing to build and operate the reactor. Certifications for designs using new technologies are expected to take longer.13 The NRC estimated in 2008 that it would take 5 years to develop necessary analytical tools, data, regulatory guides, and standard review plans for confirmatory safety analyses and license review, and another 4-5 years to conduct the licensing review for new technologies.14

In a 2001 report, DOE estimated the cost of electricity for a generic 50 MWe small reactor would be 5.4-10.7 cents/kWh, and 10.4-24.3 cents/kWh for a 10 MWe reactor.

15 Capital cost estimates range from $1000-$4000/kW. At these prices small nuclear reactors would provide power at rates competitive with fossil fuel and renewable energy generation technologies.

Small nuclear reactors are not a currently available energy generation technology. Many factors related to the technology, regulatory process, cost, and safety are still being developed and will contribute to their future commercial viability. The following DOE national laboratories are conducting research on small nuclear reactors. Pg. 4-5

### 2NC—No Transition Impact

#### No impact to hegemonic decline, that’s MacDonald and Parent—

#### The U.S. can shift burdens to allies, peacefully decrease international commitments, retain a strong military to deter adversaries, and can still play a role in alliance formation.

#### The empirical record supports our argument—transition periods aren’t more conflict prone; in fact 83 percent of retrenchment cases occurred peacefully because states drew down military obligations and moderated foreign policy ambitions.

#### The only comprehensive study proves no transition impact.

MacDonald & Parent 11—Professor of Political Science at Williams College & Professor of Political Science at University of Miami [Paul K. MacDonald & Joseph M. Parent, “Graceful Decline? The Surprising Success of Great Power Retrenchment,” International Security, Vol. 35, No. 4 (Spring 2011), pp. 7–44]

In this article, we question the logic and evidence of the retrenchment pessimists. To date there has been neither a comprehensive study of great power retrenchment nor a study that lays out the case for retrenchment as a practical or probable policy. This article fills these gaps by systematically examining the relationship between acute relative decline and the responses of great powers. We examine eighteen cases of acute relative decline since 1870 and advance three main arguments.

First, we challenge the retrenchment pessimists’ claim that domestic or international constraints inhibit the ability of declining great powers to retrench. In fact, when states fall in the hierarchy of great powers, peaceful retrenchment is the most common response, even over short time spans. Based on the empirical record, we find that great powers retrenched in no less than eleven and no more than fifteen of the eighteen cases, a range of 61–83 percent. When international conditions demand it, states renounce risky ties, increase reliance on allies or adversaries, draw down their military obligations, and impose adjustments on domestic populations.

Second, we find that the magnitude of relative decline helps explain the extent of great power retrenchment. Following the dictates of neorealist theory, great powers retrench for the same reason they expand: the rigors of great power politics compel them to do so.12 Retrenchment is by no means easy, but necessity is the mother of invention, and declining great powers face powerful incentives to contract their interests in a prompt and proportionate manner. Knowing only a state’s rate of relative economic decline explains its corresponding degree of retrenchment in as much as 61 percent of the cases we examined.

Third, we argue that the rate of decline helps explain what forms great power retrenchment will take. How fast great powers fall contributes to whether these retrenching states will internally reform, seek new allies or rely more heavily on old ones, and make diplomatic overtures to enemies. Further, our analysis suggests that great powers facing acute decline are less likely to initiate or escalate militarized interstate disputes. Faced with diminishing resources, great powers moderate their foreign policy ambitions and offer concessions in areas of lesser strategic value. Contrary to the pessimistic conclusions of critics, retrenchment neither requires aggression nor invites predation. Great powers are able to rebalance their commitments through compromise, rather than conflict. In these ways, states respond to penury the same way they do to plenty: they seek to adopt policies that maximize security given available means. Far from being a hazardous policy, retrenchment can be successful. States that retrench often regain their position in the hierarchy of great powers. Of the fifteen great powers that adopted retrenchment in response to acute relative decline, 40 percent managed to recover their ordinal rank. In contrast, none of the declining powers that failed to retrench recovered their relative position. Pg. 9-10

### 2NC—Can’t Solve

#### Even if built 100 reactors, it still wouldn’t be enough to solve warming—prefer comparative evidence.

Madsen and Dutzik 9—\*Travis Madsen has worked with Frontier Group since 2002. His work has won coverage in a wide variety of local and national media outlets, including the *Wall Street Journal*, the *New York Times*, and the *Los Angeles Times*. Prior to joining Frontier Group in 2002, Travis completed a fellowship at the New Jersey Public Interest Research Group. Travis holds a bachelors degree in molecular biology and chemistry from the University of Colorado. \*\*Tony Dutzik is senior policy analyst with Frontier Group, specializing in energy, transportation and climate policy. He is the author of more than three dozen Frontier Group reports on these and other topics, and his research has received national media attention, gaining coverage in the *New York Times*, the *Wall Street Journal*, the Philadelphia Inquirer and other major media outlets. He holds a Master's degree in print journalism from Boston University and a Bachelor of Science degree in public service from Penn State University. [November 2009, “Generating Failure How Building Nuclear Power Plants Would Set America Back in the Race Against Global Warming,” Environment America Research & Policy Center, http://www.environmentamerica.org/sites/environment/files/reports/Generating-Failure---Environment-America---Web\_0.pdf]

Even Without Delays, the Nuclear Path Is Too Slow to Keep Global Warming Emissions Within Budget

Even with generous assumptions about speed and effectiveness, building 100 new reactors in the United States by 2030 will not reduce global warming pollution fast enough to keep our carbon emissions within budget – and therefore not fast enough to meet our goals for limiting the consequences of global warming.

First, assume that the nuclear industry can deliver on its ambitious timelines and successfully complete 100 new reactors (about 100 gigawatts of generation capacity) in two decades. Then, assume that every kilowatt-hour of nuclear power would displace coal, the largest source of carbon-intensive power generation. Finally, assume that next-generation nuclear reactors operate at an average of 90 percent of full capacity – an upper-bound estimate from a group of nuclear technology experts.106 Under these best-case conditions, building 100 active nuclear reactors could prevent more than 750 million metric tons of carbon dioxide (MMTCO2) pollution in 2030. Overall power plant emissions would be 20 percent below 2005 levels.

However, these nuclear reactors would not be able to reduce emissions while they are under construction. In other words, the nuclear path delivers a late start in cutting pollution. As a result, building 100 new reactors could only reduce cumulative power plant emissions of global warming pollution by 12 percent over the next two decades compared to doing nothing. (See Figure 5.) On this path, America would still exceed its 2010-2050 electric power emissions budget by 2025 – 25 years too soon. (See “Setting a Carbon Budget for the United States” on page 13 for a brief explanation of the source of the budget line represented in Figure 5.)

In conclusion, building 100 new nuclear reactors by 2030 would be too little, too late when it comes to preventing global warming pollution. By leading to a higher and later peak in emissions, using nuclear power as a primary strategy to address global warming would ensure that the United States exceeds its 2010-2050 power plant emissions budget. As a result the nuclear path would cut into what little margin of error we have, increasing the risk of catastrophic global warming.

#### Can’t solve—2 degree rise inevitable

Anderson and Bows 11—\*Tyndall Centre for Climate Change Research, School of Mechanical, Aerospace and Civil Engineering; \*\*Sustainable Consumption Institute, School of Earth, Atmospheric and Environmental Sciences, University of Manchester (Kevin and Alice, “Beyond ‘dangerous’ climate change: emission scenarios for a new world,” Philosophical Transactions of the Royal Society”)

This already demanding conclusion becomes even more challenging when assumptions about the rates of viable emission reductions are considered alongside an upgrading of the severity of impacts for 2◦C. Within global emission scenarios, such as those developed by Stern [6], the CCC [8] and ADAM [47], annual rates of emission reduction beyond the peak years are constrained to levels thought to be compatible with economic growth—normally 3 per cent to 4 per cent per year. However, on closer examination these analyses suggest such reduction rates are no longer sufficient to avoid dangerous climate change. For example, in discussing arguments for and against carbon markets the CCC state ‘rich developed economies need to start demonstrating that a low-carbon economy is possible and compatible with economic prosperity’ [8, p. 160]. However, given the CCC acknowledge ‘it is not now possible to ensure with high likelihood that a temperature rise of more than 2◦C is avoided’ and given the view that reductions in emissions in excess of 3–4% per year are not compatible with economic growth, the CCC are, in effect, conceding that avoiding dangerous (and even extremely dangerous) climate change is no longer compatible with economic prosperity.

In prioritizing such economic prosperity over avoiding extremely dangerous climate change, the CCC, Stern, ADAM and similar analyses suggest they are guided by what is feasible.34 However, while in terms of emission reduction rates their analyses favour the ‘challenging though still feasible’ end of orthodox assessments, the approach they adopt in relation to peaking dates is very different. All premise their principal analyses and economic assessments on the ‘infeasible’ assumption of global emissions peaking between 2010 and 2016; a profound departure from the more ‘feasible’ assumptions framing the majority of such reports. The scale of this departure is further emphasized when disaggregating global emissions into Annex 1 and non-Annex 1 nations, as the scenario pathways developed within this paper demonstrate.

Only if Annex 1 nations reduce emissions immediately35 at rates far beyond those typically countenanced and only then if non-Annex 1 emissions peak between 2020 and 2025 before reducing at unprecedented rates, do global emissions peak by 2020. Consequently, the 2010 global peak central to many integrated assessment model scenarios as well as the 2015–2016 date enshrined in the CCC, Stern and ADAM analyses, do not reflect any orthodox ‘feasibility’. By contrast, the logic of such studies suggests (extremely) dangerous climate change can only be avoided if economic growth is exchanged, at least temporarily, for a period of planned austerity within Annex 1 nations36 and a rapid transition away from fossil-fuelled development within non-Annex 1 nations.

The analysis within this paper offers a stark and unremitting assessment of the climate change challenge facing the global community. There is now little to no chance of maintaining the rise in global mean surface temperature at below 2◦C, despite repeated high-level statements to the contrary. Moreover, the impacts associated with 2◦C have been revised upwards (e.g. [20,21]), sufficiently so that 2◦C now more appropriately represents the threshold between dangerous and extremely dangerous climate change. Consequently, and with tentative signs of global emissions returning to their earlier levels of growth, 2010 represents a political tipping point. The science of climate change allied with emission pathways for Annex 1 and non-Annex 1 nations suggests a profound departure in the scale and scope of the mitigation and adaption challenge from that detailed in many other analyses, particularly those directly informing policy.

However, this paper is not intended as a message of futility, but rather a bare and perhaps brutal assessment of where our ‘rose-tinted’ and well intentioned (though ultimately ineffective) approach to climate change has brought us. Real hope and opportunity, if it is to arise at all, will do so from a raw and dispassionate assessment of the scale of the challenge faced by the global community. This paper is intended as a small contribution to such a vision and future of hope.

### 2NC—No Impact

#### Reject their try or die impact framing—they cherry-pick the worst case scenarios and assume they are likely—every scientific study concludes that the likelihood of such devastation is virtually zero

Eastin et al. 11 [Josh, Professor of Political Science at the University of Washington, Reiner Grundmann and Aseem Prakash, “The two limits debates: “Limits to Growth” and climate change,” Futures, February, Vol 43, Issue 1, pp. 16-26, ScienceDirect]

And Hjerpe and Linnér point out, ‘The IPCC ‘describes scenarios as ‘alternative images of how the future might unfold … to analyze how driving forces may influence future emission outcomes’ (…), i.e., they are not designed to provide blueprints for the future. The IPCC … emphasizes that neither probability nor desirability is attached to the various scenario families … The future evolution of society is recognized as an uncertain process of interaction between, for example, demographic development, socio-economic development, and technological change.’ [[50]](http://www.sciencedirect.com/science/article/pii/S0016328710000352#bib47)

There is no probability assigned to the various scenarios which opens the way for decision makers to pick the one that aligns with their preconceptions. In this sense, both LtG and IPCC have used scenarios in order to communicate the possibility of a dystopian future, not as a prediction, but as a reminder that something needs to be done urgently if we are to prevent the worst.

## \*\*\* 1NR

### 1NR—Overview

#### Competition for oil will be hot and dangerous—the coming wars will involve China and Russia

Meacher 08—Labour MP for Oldham West and Royton, was environment minister 1997-2003. [Michael Meacher, “The era of oil wars,” [guardian.co.uk](http://www.guardian.co.uk/), Sunday 29 June 2008, pg. http://www.guardian.co.uk/commentisfree/2008/jun/29/oil.oilandgascompanies

The US maintains 737 military bases in 130 countries under cover of the "war on terror" to defend American economic interests, particularly access to oil. The principal objective for the continued existence and expansion of Nato post-cold war is the encirclement of Russia and the pre-emption of China dominating access to oil and gas in the Caspian Sea and Middle East regions. It is only the beginning of the unannounced titanic global resource struggle between the US and China, the world's largest importers of oil (China overtook Japan in 2003). Islam has been dragged into this tussle because it is in the Islamic world where most of these resources lie, but Islam is only a secondary player. In the case of Russia, the recent pronounced stepping up of western attacks on Putin and claims he is undermining democracy are ultimately aimed at securing a pro-western government there, and access to Russian oil and gas when Russia has more of these two hydrocarbons together than any other country in the world.

The struggle has also spilled over into West Africa, reckoned to hold some 66 billion barrels of oil typically low in sulphur and thus ideal for refining. In 2005 the US imported more oil from the Gulf of Guinea than from Saudi and Kuwait combined, and is expected over the next 10 years to import more oil from Africa than from the Middle East. In step with this, the Pentagon is setting up a new unified military command for the continent named Africom. Conversely, Angola is now China's main supplier of crude oil, overtaking Saudi Arabia last year. There is no doubt that Africom, which will greatly increase the US military presence in Africa, is aimed at the growing conflict with China over oil supplies.

As [Joe Lieberman](http://en.wikipedia.org/wiki/Joe_Lieberman), former US presidential candidate, put it, efforts by the US and China to use imports to meet growing demand "may escalate competition for oil to something as hot and dangerous as the nuclear arms race between the US and the Soviet Union".

#### War with Russia is an existential risk

Krieger & Starr 12—President of the Nuclear Age Peace Foundation & Senior Scientist for Physicians for Social Responsibility. [David Krieger & Steven Starr, “A Nuclear Nightmare in the Making: NATO, Missile Defense and Russian Insecurity,” Nuclear Age Peace Foundation, January 03, 2012 http://www.wagingpeace.org/articles/db\_article.php?article\_id=321]

This is a dangerous scenario, no matter which NATO we are talking about, the real one or the hypothetical one.  Continued US indifference to Russian security concerns could have dire consequences: a breakdown in US-Russian relations; regression to a new nuclear-armed standoff in Europe; Russian withdrawal from New START; a new nuclear arms race between the two countries; a breakdown of the Nuclear Non-Proliferation Treaty leading to new nuclear weapon states; and a higher probability of nuclear weapons use by accident or design.  This is a scenario for nuclear disaster, and it is being provoked by US hubris in pursuing missile defenses, a technology that is unlikely ever to be effective, but which Russian leaders must view in terms of a worst-case scenario.

In the event of increased US-Russian tensions, the worst-case scenario from the Russian perspective would be a US first-strike nuclear attack on Russia, taking out most of the Russian nuclear retaliatory capability.  The Russians believe the US would be emboldened to make a first-strike attack by having the US-NATO missile defense installations located near the Russian border, which the US could believe capable of shooting down any Russian missiles that survived its first-strike attack.

The path to a US-Russian nuclear war could also begin with a conventional military confrontation via NATO. The expansion of NATO to the borders of Russia has created the potential for a local military conflict with Russia to quickly escalate into a nuclear war.  It is now Russian policy to respond with tactical nuclear weapons if faced with overwhelmingly superior conventional forces, such as those of NATO.   In the event of war, the “nuclear umbrella” of NATO guarantees that NATO members will be protected by US nuclear weapons that are already forward-based in Europe.

#### Biofuls are key to military readiness.

Gardner 12—Junior Fellow @ American Security Project [Robert Gardner, “Budgeting for Biofuels:The Military’s Dependence on Petroleum Must be Mitigated,” American Security Project, June 21, 2012, http://americansecurityproject.org/blog/2012/budgeting-for-biofuelsthe-militarys-dependence-on-petroleum-must-be-mitigated/]

Petroleum is currently used to satisfy 80% of the US military’s energy needs and is relied upon as the single source of liquid fuel for transportation, operations, and training. The volatile price of oil has incurred huge unbudgeted costs for the military, causing national security risks for the military’s operations.

In light of national security risks it has become widely agreed upon that the Department of Defense should be hedging its bets against petroleum use.  The Navy is seeking to move away from petroleum dependence by investing in biofuels, the primary alternative to petroleum fuels.

However, both the House and Senate Armed Services Committees have moved to block the Navy’s plans to purchase biofuels for testing and to directly invest in domestic biofuels producers. This action undermines the military’s efforts to mitigate the long term strategic risks posed by its dependence on petroleum. Biofuel research and development needs to be on the table as the military reduces its dependence on petroleum.

Why does the military need to shift away from petroleum fuel?

Currently the military is dependent upon volatile petroleum prices set on the global market. These prices are largely determined by the unpredictable politics of foreign countries. Even if the military dose not import oil directly from Iran or the Middle East, the price paid for petroleum is largely set by market conditions in the region.

Price instability has caused budgeting dilemmas for the military in recent years. A June 2012 Congressional Research Service [report](http://www.fas.org/sgp/crs/natsec/R42558.pdf) found that the cost of buying fuel has increased faster than any other major DoD budget category. Despite the DoD’s cutting back 4% on petroleum use from FY2005 to FY2011, its spending on petroleum ballooned 381% in real (i.e., inflation-adjusted) terms during this time period.

Along with rising prices, the short term volatility of oil prices poses substantial risks for DoD budgeting and operations. Secretary of the Navy Ray Mabus has stated that every dollar increase in the price of a barrel of petroleum costs the Navy about $31 million of unbudgeted funding annually. DoD reports have found that a 10% increase from the FY2011 price of fuel would cost the DoD as a whole an additional [$1.7 billion a year](http://www.fas.org/sgp/crs/natsec/R42558.pdf).

Former Defense Secretary Robert Gates asserted that unbudgeted fuel costs could force operational cuts in Air Force flying hours, Navy steaming days, and training for home-stationed Army troops. These cuts pose serious security risks for military operations. While testifying on military budgeting for 2013 Secretary Mabus stated that “we would be irresponsible if we did not reduce our dependence on foreign oil.”

Steps Forward

Steep increases and fluctuations in petroleum spending emphasize the need for the DoD to hedge its bets against rising petroleum prices. The Navy and Air Force have set forth 2020 goals to reduce their oil usage by 50%, by using alternative fuels. Secretary Mabus and others have [stated](http://www.navy.mil/navydata/people/secnav/Mabus/Speech/SeaAirSpace2012%20transcript%20%282%29.pdf) that efforts toward biofuel development will increase the security of the energy supplies and reduce the service’s vulnerability to price shocks.

#### We must decrease the amount of CO2 already in the atmosphere to prevent extinction—they can’t access this impact.

EarthTalk 12 [“Atmospheric CO2—Is it Too Late Anyway?” E Magazine, Thursday, August 23rd, 2012, pg. http://globalwarmingisreal.com/2012/08/23/earthtalk-atmospheric-co2-is-it-too-late-anyway/]

Actually the amount of carbon dioxide (CO2) in the atmosphere today is roughly 390 parts per million (ppm). And that’s not good news. “Experts agree that this level cannot be sustained for many decades without potentially catastrophic consequences,” reports the [Geos Institute](http://www.geosinstitute.org), an Oregon-based non-profit and consulting firm that uses science to help people predict, reduce and prepare for climate change.

While we’re unlikely to get atmospheric CO2 concentrations down as low as they were (275 ppm) before we started pumping pollution skyward during the Industrial Revolution, climate scientists and green leaders agree that 350 ppm would be a tolerable upper limit. Prior to 2007 scientists weren’t sure what emissions reduction goal to shoot for, but new evidence led researchers to reach consensus on 350 ppm if we wished to have a planet, in the words of NASA climatologist James Hansen, “similar to the one on which civilization developed and to which life on earth is adapted.”

### 1NR—Warming

#### Algae consumes CO2

Bosselman 11—Professor of Law Emeritus @ Chicago-Kent College of Law [Fred Bosselman, “GREEN DIESEL: FINDING A PLACE FOR ALGAE OIL,” CHICAGO-KENT LAW REVIEW, Vol 86:1, 2011]

Under natural growing conditions, algae grow by using photosynthesis, a process that uses carbon dioxide (CO2) from the air as a nutrient. But although the amount of carbon dioxide in the air is growing, it is a small percentage, and far too small to support mass production of algae for oil. Therefore, scientists assume that supplemental carbon dioxide would be needed, which would be likely to make the process prohibitively expensive if the carbon dioxide had to be purchased on the open market.106 This has led to extensive exploration of the possibility that algae production facilities might be fed with the exhaust gases from coal or gas fired power plants, cement plants, breweries, fertilizer plants, or steel mills.107 If ponds are located in the vicinity of a coal-fired power plant or other industrial facility that can provide flue gas that is high in CO2, the growth rate of the algae might be increased substantially.108

The opportunity to grow algae using waste CO2 from power plants or industrial facilities has already led to a number of prototype projects.109 For example,

Inventure Chemical and Seambiotic have announced that they have formed a joint venture to construct a pilot commercial biofuel plant with algae created from CO2 emissions as a feedstock. The plant will use algae strains that Seambiotic has developed coupled with conversion processes developed by Inventure to create ethanol, biodiesel and other chemicals. 110

### 1NR—Funding Now

#### The BCA makes the budget zero-sum

Garamone 12 [Jim Garamone, “Panetta, Dempsey Say Pentagon Feels Sequestration’s Shadow,” American Forces Press Service, April 16, 2012, http://tinyurl.com/6q94et2]

“In the end, it’s up to Congress,” Panetta said. “In the coming weeks, they will begin considering the defense authorization and appropriations bills. Our hope is that Congress will carefully consider the new defense strategy and the budget decisions that resulted from that strategy.”

Any changes the Congress contemplates will affect other sections of the budget, because it is a zero-sum game, the secretary noted. Because of the Budget Control Act, he added, any change in any one area of the budget and force structure will inevitably require offsetting changes elsewhere.

#### This means the plan which is out of the blue must be offset

Serbu 12 [[Jared Serbu](mailto:jserbu@federalnewsradio.com), “Panetta to Congress: Don't mess with my budget,” Federal News Radio, 5/11/2012, http://www.federalnewsradio.com/394/2861074/Panetta-to-Congress-Dont-mess-with-my-budget]

Panetta warned lawmakers that tinkering with DoD's budget plan is a recipe for stalemate with the Senate and will have negative consequences for national security.

"The Department of Defense is not going to support additional funds that come at the expense of critical national security priorities," he said. "If members of Congress try to restore their favorite programs without regard to an overall strategy, the cuts will have to come from areas that impact overall readiness. There's no free lunch here."

The remarks at a Pentagon news conference came hours after the House panel approved its version of the 2013 Defense authorization bill. The panel's chairman, Buck McKeon (R-Calif.), has been [extremely critical](http://www.federalnewsradio.com/?nid=394&sid=2786080) of DoD's plan to reduce spending by $487 billion over the next 10 years despite having voted in favor of the 2011 Budget Control Act that mandated the spending reductions.

Every extra dollar must have an offset

Given the parameters of the deficit-cutting legislation lawmakers passed last year, the military must cut $487 billion from national security programs one way or another, Panetta argued.

"Every dollar that is added by Congress will have to be offset somewhere. And if for some reason they don't want to comply with the Budget Control Act, they'd certainly be adding to the deficit, which certainly puts our national security even further at risk," he said.

#### Budgets are tight but biofuels are winning – proves the brink.

Peterka 1/22/2013 [Amanda Peterka, E&E reporter, Airlines piggyback on DOD's test flights, push for expanded production

http://www.eenews.net/Greenwire/2013/01/22/archive/5?terms=biofuels]

The military also depends on Congress for funding to test and purchase biofuels, said John Heimlich, vice president and chief economist at Airlines for America, a consortium of 11 airlines that has entered a strategic alliance with the Navy to advance aviation biofuels.

"That's one thing that makes the military effective," Heimlich said. "It's not just their know-how and commitment. It's their balance sheet."

But although the Pentagon could guarantee a market for aviation biofuels, the effort could be toppled by Washington budget battles.

So far, though, news from Washington has been encouraging for biofuel promoters. President Obama signed a defense authorization act last month that included funding for the military's biofuel programs. And early this month, Obama signed a "fiscal cliff" package that extended tax incentives for the cellulosic biofuel and biodiesel industries.

To keep momentum going in the industry, Holland said, the military needs to be aggressive about putting those biofuel programs in place. The commercial aviation industry also needs to get off the ground, he said.

#### There is no new spending.

Brannen 1/22/2013 [Kate, Wary Defense Department slows spending, Politico, <http://dyn.politico.com/printstory.cfm?uuid=33904F89-38B8-46ED-97A8-ADF4E02C829C>]

One precautionary measure raising questions in the defense world is Deputy Defense Secretary Ashton Carter’s order not to award any research and development, production contracts and contract modifications that obligate more than $500 million without first clearing them with Frank Kendall, the undersecretary of defense for acquisition, technology and logistics.

“I saw this as the critical line in Carter’s memo,” said David Berteau, director of the international security program at the Center for Strategic and International Studies.

In a follow-up memo dated Jan. 15 and obtained by POLITICO, Kendall explained that by “obligation,” the Pentagon meant not only the amount of the specific contract action but also the total potential obligation of the contract. In other words, even if an agency wanted to award a contract that by itself was worth less than $500 million, but that was part of a total agreement worth more, it would have to get clearance.

Before Kendall signs off on the contract, he wants to see a page-long explanation of the contract, its proposed dollar value, the appropriation and the year of funding, its purpose and an assessment of why it cannot be delayed. The requests are to be submitted to Kendall through Richard Ginman, the Pentagon’s director of defense procurement and acquisition policy.

Of all the precautionary steps the Pentagon is taking, this one has the industry the most worried.

“This requirement will have a chilling effect on any contract, because adding on another layer of review will deter the services from moving forward on big awards,” said Loren Thompson, chief operating officer of the Lexington Institute and a consultant for several of the biggest defense companies.

One congressional source read Carter’s directive to mean the military won’t be signing any big contracts anytime soon.

At the very least, adding this layer of review will very likely slow the process by which contracts are awarded — and that is probably the point.

### 1NR—Sequestration

#### Congressional support increasing—however, Pentagon is not out of the woods. New political realities will renew opposition

Daly 12/23/12 [[John Daly](http://oilprice.com/contributors/John-Daly), “U.S. Military Biofuels Survives Republican Congressional Euthanasia Attempt,” OilPrice.com| Sun, 23 December 2012 00:00, pg. http://tinyurl.com/cl34qu3

During the heated U.S. presidential debate last month, Republicans lined up the U.S. military’s interest in renewable fuels in their gunsights, with both House and Senate Republicans introducing legislation to prohibit the Pentagon from buying any fuels with a price tag greater than those generated from traditional fossil fuels.

Those efforts have apparently fallen by the wayside, as unofficial reports indicate that biofuels provisions have survived a House-Senate conference over the upcoming National Defense Authorization Act legislation.

According to Capitol Hill sources, speaking on condition of anonymity, original House of Representatives text prohibiting Department of Defense spending on biofuels has been removed and replaced with a requirement that DOD funding be matched by the Department of Energy and the department of Agriculture. Giving heart to biofuel proponents, the USDA has already committed funds, while DOE funding is contingent on appropriations.

Pentagon interest in biofuels is not a recent event, but has been gridlocked by Washington power plays. The 2007 Energy Independence and Security Act mandated that the country’s fuel supply include 36 billion gallons of biofuel by 2020, three years later, 2010 the USDA reported that to meet the mandate, 527 new bio-refineries would be required at a cost of 4168 billion to meet demand.

Shortly before his inauguration in January 2008 President-elect Obama promised to invest $150 billion over the next decade to develop biofuels, plug-in hybrid vehicles, renewable energy production and a skilled work force for clean technologies.

Obama made clean energy a centerpiece of his administration’s policy from the outset. In recognition of the potential of the US bio-economy, in July 2010 the Obama Administration issued an Executive Memorandum called ‘Science and Technology Priorities for the FY2012 Budget’ (M-10-30), which mandated a priority for federal agen¬cies to “support research to establish the foundations for a 21st century bio-economy.”

The following year, during his State of the Union address on 25 January 2011 Obama said, “This is our generation's Sputnik moment. Two years ago, I said that we needed to reach a level of research and development we haven’t seen since the height of the Space Race. And in a few weeks, I will be sending a budget to Congress that helps us meet that goal. We’ll invest in biomedical research, information technology, and especially [clean energy](https://smartpay.gsa.gov/news/clean-energy) technology—(applause)—an investment that will strengthen our security, protect our planet, and create countless new jobs for our people. Already, we’re seeing the promise of renewable energy.”

Obama’s initiatives gathered substantial support. Enter the Pentagon.

In January 2010, USDA Secretary Tom Vilsack and Secretary of the Navy Ray Mabus signed a Memorandum of Understanding to develop advanced biofuels and other renewable energy systems for commercial and military transportation needs. Two years later USDA Under Secretary Dallas Tonsager signed an agreement with the Airlines for America on a “[Farm to Fly](http://www.usda.gov/documents/usda-farm-to-fly-report-jan-2012.pdf)” project, investigating feedstock and infrastructure needs for the development of a U.S. aviation biofuels industry.

In October 2010 the Navy purchased 20,055 gallons of algae biofuel at an eye-watering cost of $424/gallon.  Nevertheless, the contract was one of the biggest U.S. purchases of a non-corn ethanol biofuel up to that time. A year later, the Navy reportedly spent $12 million for 450,000 gallons of biofuel. The bad news was that the biofuel’s cost worked out to around $26.67 per gallon, roughly six times the current cost of traditional gas.

In January 2011, bringing together three different federal agencies, Secretaries Vilsack, Mabus and Department of Energy Secretary Steven Chu signed an agreement to work with private industry to develop drop-in biofuels for military and commercial use (drop-in biofuels are direct replacements for existing gasoline, diesel, and jet fuels that do not require changes to existing fuel distribution networks or engines).

Building on that momentum, the White House in its ‘Blueprint for a Secure Energy Future’, released on 30 March 2011, again emphasized its commitment to developing the US biofuel sector with a USD800 million commitment for advanced biofuel projects. After noting that “the Administration is investing in the research and deployment of alternative fuels that can be safely used in the aviation sector”, the document continued: “Competitively-priced drop-in biofuels could help meet the fuel needs of the Navy, as well as the commercial aviation and shipping sectors.”

But all of this eventually bogged down in bipartisan gridlock. Last autumn, U.S. House of Representatives along with Sentate Republicans introduced legislation to ban the military from purchasing or developing biofuels if they cost more than traditional fossils fuels.

Given the new political realities, both Congressional initiatives have fallen by the wayside, with both the House and Senate having been forced to harmonize their variant versions of the annual National Defense Authorization Act (NDAA) appropriations bill. With the “fiscal cliff” approaching, the final version, earlier this week, removes attempts to block the DoD’s biofuels program.

But renewable fuels advocates are hardly out of the woods yet—they have 12 months to deliver before military appropriations issues reemerge, and only the most ardent optimist at this point can assume that the 2012 DoD appropriations will include fiscal largesse for all military “guns and butter”—err, vegetable oil biofuel—needs.

#### No restrictions now—Pentagon budget battles will renew the fight

Colman 12/18/12 [Zack Colman, “Defense bill preserves military biofuels program,” E2 Wire, 12/18/12 05:39 PM ET, pg. http://tinyurl.com/bbxcmgr

A House-Senate deal on defense legislation omits a GOP-backed plan to thwart military purchases of biofuels.

The Senate already had stripped restrictive language from its version of the defense authorization bill last month, making it differ from the House. House and Senate negotiators took cues from the Senate's version.///

“There is no limiting language in there. It looks favorable at this point and I commend the administration for the hard line it took,” Michael McAdams, president of the Advanced Biofuels Association, told The Hill on Tuesday.

A House-Senate negotiating group unveiled the compromise bill Tuesday afternoon. House Armed Services Chairman Buck McKeon (R-Calif.) said the bill is scheduled for a Thursday House vote, is expected to pass the Senate and will hit President Obama's desk Friday.

Republicans in the Senate and the House had previously added amendments to the authorization bills that blocked the military from spending on biofuels.

They argued the fuels were too expensive with sequestration set to shave $500 billion from the Pentagon's budget through the next 10 years. And others, such as Sen. James Inhofe (R-Okla.), said the Energy Department — not Defense (DoD) — should be investing in such fuels.