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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

### 1NC DA 1

#### 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 solves warming

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.

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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?

#### Studies show such a fertilizer tax could effectively reduce usage.

Pierre M ́erel, September 2011. Agricultural and Resource Economics @ UC Davis. “Inferring the Effects of Nitrogen Management Policies Using a Fully Calibrated Programming Model of California Agriculture,” asi.ucdavis.edu/research/nitrogen/nitrogen-faculty-workgroup-materials/Merel%20Final%20Report.pdf.

Our work addresses ex ante policy evaluation as it relates to nitrogen management in agriculture, in particular the reduction of nitrogen losses from field crops. We build a bio-economic model of crop production at the regional scale to predict the effects of nitrogen-related policies on agriculture and the environment. The model is calibrated against economic data on observed crop acreages and yields, as well as predetermined supply responses. In addition, crop-specific production functions are calibrated to exogenous agronomic information on yield responses to nitrogen and irrigation. Environmental outcomes are tracked using the biophysical model DAYCENT.¶ The model is applied to the study of a nitrogen tax in Yolo County, California, intended to mitigate non-point source nitrogen pollution from field crops. At low tax levels, the behavioral and environmental responses to the nitrogen tax appear to be largely due to the reduction in fertilizer use and irrigation on each crop. However, as the tax level increases, reductions in input intensities start to level out due to unfavorable yield effects, and acreage reallocation among crops begins to play a sizable part in the total response.¶ From a methodological standpoint, our study illustrates the need to accurately model input intensity adjustments in regional models of crop supply intended for agri-environmental policy analysis. From a policy standpoint, our study shows that sizable reductions in nitrogen application, and attendant reductions in nitrogen losses, can be achieved at the regional scale at a moderate social cost. Overall, the induced reduction in nitrate leaching appears larger than the reduction in nitrous oxide emissions.¶ Specific results: The study develops an economic model of nitrogen use at the regional scale, for use in ex ante agri-environmental policy evaluation. The model is based on the principles of positive mathematical programming (PMP), as outlined in Howitt (1995) and, more recently, M ́erel et al. (2011). As such, the model exactly replicates an observed acreage¶ 1allocation among activities, as well as an exogenous set of crop supply elasticities. The nov- elty of our approach lies in the fact that the model is also calibrated so as to replicate crop yield responses to irrigation and nitrogen application consistent with agronomic information obtained from the biophysical soil process model DAYCENT (Del Grosso et al., 2008). Con- sequently, our fully calibrated model is particularly fit for the analysis of policies that are likely to affect both acreage allocation and input intensity in multi-crop agricultural systems.¶ This paper is not the first one to recognize the need to better represent farmers’ input adjustment opportunities in programming models of agricultural supply, but it is the first one to propose a solution to the yield response calibration problem in the context of positive mathematical programming. Before us, Godard et al. (2008) have used local yield response curves derived from the biophysical model STICS (Brisson et al., 2003) to represent farmers’ nitrogen fertilizer application choice as a first stage to a linear programming representation of crop choice. Graveline and Rinaudo (2007) have exploited a yield response curve for corn to specify a discrete set of corn production activities in a pure linear programming framework. Our approach is different from these, as we focus on exact replication of observed economic behavior through non-linear PMP calibration, as opposed to constrained linear optimization. We also calibrate crop yield responses not only to nitrogen, but also irrigation, an important margin for the assessment of certain environmental outcomes such as nitrate leaching. Finally, we use the biophysical model to derive regional-level—as opposed to farm- level—yield response curves.¶ Our model is applied to field crop agriculture in Yolo County, California, to evaluate the economic and environmental effects of an exogenous increase in the price of nitrogen. A nitrogen tax represents a possible market-based instrument to help mitigate non-point source nitrogen pollution from agriculture. The effects of the tax on nitrate leaching and nitrous oxide (N2O) fluxes are tracked. The linkages between the agronomic model DAYCENT and the economic optimization model are depicted in figure 1.¶ To comprehend the effect of a nitrogen tax on behavioral and environmental outcomes, it is useful to decompose the total effect into its two elementary economic responses: an extensive margin effect, that is, the reallocation of acreage among crops, and an intensive margin effect, that is, the change in input intensity per acre, for a given crop. Both effects are operating simultaneously, and in our application the intensive margin effect, which has been overlooked in existing PMP studies (Helming, 1998), is likely to be large. Hence, to anticipate the full effect of a nitrogen tax policy, it is necessary to accurately model the intensive margin response, in addition to the extensive margin response.¶ Indeed, we find that at low to moderate tax levels, most of the environmental benefits of the policy arise from reductions in nitrogen and water application on each crop, with acreage reallocation playing a minor role. However, as tax levels rise, input intensity adjustments start to level out due to adverse yield effects, and acreage reallocation among crops starts to play a more significant role in the behavioral and environmental responses.¶ Table 1 reports the contributions of the input intensity and acreage reallocation effects to the total behavioral response, that is, the reduction in nitrogen application at the regional level. At the tax level of ¢4/lb N, the total reduction in nitrogen applied in Yolo is predicted to be 3.9%, and 3.3% is due to the input intensity effect. At the higher tax level of ¢16/lb N, the total effect is a reduction of N application by 12.8%, the contribution of the input intensity effect being 8.3%. As such, the relative importance of the acreage reallocation effect to the total effect is increasing with the tax level.1

#### 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."

### 1NC K

#### The technopolitics of the nuclear fuel cycle necessitate colonial hierarchy. The aff is imperial domination pursued by technical market means.

Hecht 11—Gabrielle Hecht, History at Michigan [*Entangle Geographies: Empire and Technopolitics in the Cold War* ed. Gabrielle Hecht p. 3-8]

Underlying much of our analysis is the notion of technopolitics, a concept that captures the hybrid forms of power embedded in technological artifacts, systems, and practices. In my book on French nuclear power, I used the term to describe the strategic practice of designing or using technology to enact political goals. Such practices, I argued, were not simply politics by another name; they produced systems whose design features mattered fundamentally to their success and shaped the ways in which those systems acted upon the world.7 Similarly, in describing the rule of experts in twentieth-century Egypt, Timothy Mitchell uses the term “techno-politics” to emphasize the unpredictable power effects of technical assemblages— that is, the unintentional effects of the (re)distribution of agency that they enacted. These two usages are compatible, and this volume embraces both in order to explore a range of ways in which technologies become peculiar forms of politics. Intentions matter, but they are not determinative. The material qualities of technopolitical systems shape the texture and the effects of their power. Technologies can also, however, exceed or escape the intentions of system designers. Material things can be more flexible—and more unpredictable—than their builders realize. The allure of technopolitical strategies is the displacement of power onto technical things, a displacement that designers and politicians sometimes hope to make permanent. But the very material properties of technopolitical assemblages—the way they reshape landscapes, for example, or their capacity to give or take life— sometimes offers other actors an unforeseen purchase on power by providing unexpected means for them to act.8 Some of us in this volume focus directly on technopolitical practices, while others treat technopolitics more as a heuristic backdrop. Either way, we want to draw attention to how the material properties of technologies shaped the exercise of political power in the second half of the twentieth century. In most accounts, atomic bombs are the defining technology of the Cold War. The Swedish writer Sven Lindqvist observes, however, that Cold War nuclear imaginaries descended directly from the colonial warfare of earlier eras. For centuries, Europeans had maintained that different moral structures underlay the rules of war for battles between “civilized” nations and conflicts with “savages.” In twentieth-century empires, aerial bombs joined machine guns as tools of extermination. Even as ecstatic prophets proclaimed the airplane’s ability to ensure world peace, the British experimented with strategic bombing in Baghdad and the French bombarded Damascus. So perhaps it was inevitable that atomic energy (and other latetwentiethcentury tools of war) should follow suit. At one stage, Lindqvist invites us into the creepy prescience of a 1920s German science-fiction novel: Should atomic power remain in the hands of whites? Or should we share our secret with the peoples of the world? . . . A world conference is convened to settle the question. . . . Licenses should be issued only to dependable people, and only for economic purposes. But immediately voices are raised, accusing Europe of wanting to use atomic power for imperialistic purposes. The conflicts seem endless. “They will never stop,” says Professor Isenbrandt [an atomic physicist]. “The gulf between the races is too great. No bridge can cross it.” . . . Quite right: one day some black miners in South Africa gang up on a smaller group of whites and drive them away “for a trifling reason.” . . . In Algeria, in Tunisia, wherever blacks are working for European companies, the flag of revolt is raised. The whites are defeated by overwhelming black masses. Then the message arrives that the Chinese are on the move. All the colored races unite under the leadership of the Chinese against the whites. Then Isenbrandt explodes his superweapon over the Mongolian masses. “He watched the magnificent spectacle, his work, with the joy of the master. He was the one who had freed the element and bent it to his will. Even now he was filled entirely with the great task of acting as the protector and savior of the threatened colonies.” “It was wrong,” he says sharply, “when our prophets of the past promised the same rights to everyone in the world. Now everywhere on earth the black, brown, and yellow races are calling for freedom. . . . Woe betide us if we grant it! Our power and even our existence would soon be at an end. The superweapon will be the white race’s, and thus humanity’s, salvation. For “only the pure white race can fulfill the task it has been given.”9 Two decades later, in a Pacific war fraught with racial overtones,10 several hundred thousand Japanese became the first victims of the “white superweapon.” While the Atomic Bomb Casualty Commission industriously erected colonial scientific structures to study the aftermath,11 the United States, Britain, and France scoured colonies in Africa and elsewhere in a desperate bid to monopolize the magic stuff new stuff of geopolitical power: uranium. “Black miners in South Africa” would be among those who dug it up.12 Once the weapons were built, the imperial cycle began anew, with atomic bombing—more palatably referred to as “nuclear testing”—of the Marshall Islands, the Sahara, the Navajo Nation, Maralinga, Moruroa, and other colonized spaces. Nuclear weapons were not the only threads that entangled the Cold War with empire, however. In 1949 US President Harry Truman famously presented his Point Four Program, articulating a vision of how technological progress would help poor “peace-loving peoples” transcend colonialism via capitalist democratization rather than socialist revolution. Yet in practice, much of US foreign policy through the 1950s explicitly supported the maintenance of European empires, delaying decolonization.13 Meanwhile, the rapidly declining European empires feared that US technological dominance constituted a new form of imperialism, of which they would soon find themselves subjects rather than masters.14 At the heart of these (post)colonial Cold War entanglements lay a refiguring of global technopolitical geographies. The “new imperialism” of the nineteenth and twentieth centuries had found legitimation in ideologies that measured human advancement by achievements in industrial technologies and Western scientific and medical practices.15 Cold War thought and practice turned such justifications into a futurist vision. Prominent Western intellectuals and strategists argued that democracy and technology could work together to offer a fundamentally non-ideological mode of action. Capitalist modernization theory posited that, with the right sort of assistance, any human society could climb the ladder of progress: on each successive rung, industrialization and democratization would proceed hand in hand.16 The Soviet vision offered a development path that led to socialism through (often large-scale) industrialization. Apart from its rejection of the “free market,” however, the Soviet model of progress differed little from the Western one.17 Through their claims to modernity, both capitalism and communism proclaimed the power to provide rational means of explaining and transcending global inequalities. In both cases, the very claim to rationality depended on an imperial objectification that lumped emerging nations together under the rubric of “underdevelopment.”18 Both flavors of developmentalism often escaped the boundaries imagined by their promoters. Both would prove seductive for nationalist leaders elsewhere in the world, particularly when accompanied by promises of material and military assistance. Elites in decolonizing nations understood the power of technopolitics, not just in the global pecking order, but also within their new nations. For example, Indian leaders challenged “First World” ownership of nuclear things by proclaiming nuclear development to be a fundamental building block of India’s postcolonial national identity.19 Indonesian officials seeking technical aid for agricultural development resisted the economic models inspired by US Cold War imperatives in favor of their own national and nationalist economic agendas.20 In Senegal, the state sought to break with a colonial geography of production and export, refiguring national space into development zones, and thus was able to engage in totalizing infrastructural, educational, and production projects.21 Even as the “darker nations” affirmed independent historical trajectories— even as their leaders formulated the Third World project22—development schemes formed the infrastructure of global entanglements. The establishment of the Non-Aligned Movement did not obviate the Cold War in the South, though it certainly shaped its meanings and power. Technological exchanges between those fully committed to the superpower struggle and those who sought to combat its hegemony made the Cold War inescapable. Sometimes, though, the blind, blundering logic of the Cold War could be subverted or inverted via the very technologies to which it laid claim. Development—in all its multiple meanings and practices— offered post-colonial leaders routes to power not foreseen by Cold Warriors. Our essays sketch how Cold War ideological struggles, decolonization, postcolonial nation building, and new (or refashioned) imperial projections became entangled in technopolitical projects and practices. The volume as a whole thus contributes to the historiography of what Odd Arne Westad and others have called “the global Cold War.” This phrase gestures toward the many relationships among the superpower struggle, decolonization, global inequalities, and imperial difference. The research sites we have chosen— India, Brazil, Saudi Arabia, and South Africa, among others—implicitly align us with Westad’s conclusion that “the most important aspects of the Cold War were neither military nor strategic, nor Europe-centered, but connected to political and social development in the Third World.”23 Critics have noted that this formulation forces an unnecessary choice, and that the “Third World’s” importance in the Cold War does not obviate that of the superpowers. Clearly, the Cold War’s technopolitical legacy remains strong in the North’s military-industrial complex, in the structures of its universities and their scientific research, in the enduring environmental and social impacts of weapons production, and so on. While we agree with these critics, we also appreciate Westad’s insistence on distributing the political history of the Cold War more widely. His stand serves as a stage for our discussion of its technopolitical history. We had debates and disagreements along the way, most notably around the notion of (global) Cold War itself. Do we take this as merely a temporal label, and lump everything that happened between the end of World War II and the fall of the Berlin Wall into this slot? Clapperton Mavhunga argues that this forced alignment would deny historical agency to much of the colonial and postcolonial world. Itty Abraham similarly notes that regional histories follow cadences of their own, whose contingencies would be lost if we surrendered to a periodization dictated by the superpowers’ hegemonic fantasies. We have thus tried, in a variety of ways, to hold different historical temporalities in tension. The related move of taking the Cold War merely as an etic category (of historical analysis) poses parallel problems. Ruth Oldenziel, Martha Lampland, and Peter Redfield show how this can create a false sense of rupture: an implicit argument that everything changed when the Cold War began, and changed again when it ended. Cold War technopolitics were not created from scratch in response to superpower tensions and the division of Europe. Perhaps paradoxically, understanding their longer histories helps to explain their power, and helps to deprovincialize the Cold War both temporally and spatially. In the end, many of us attend to the Cold War as an emic category, seeking to make visible how historical actors understood, invoked, or deployed it: as legitimation, resource, rupture-talk, organizational logic, or object of contestation. Our collection trains a technopolitical lens on the Cold War while simultaneously attending to multiple spatial, temporal, and political scales: global, transnational, international, imperial, colonial, postcolonial, national, regional, local. Each essay traces different entanglements among scales. Some of the geographies we outline are centered in places typically considered peripheral to the Cold War. Others suggest alternative maps of polities and technologies typically considered central. Reaching back to nineteenth-century US territorial practices (and forward to those of Bush era war-making), Ruth Oldenziel rethinks American geography in technopolitical terms. Cold War America, she insists, extended well beyond the continental mainland and European bases and allies: it was technologically distributed in—and dependent upon—islands scattered over the globe. Cold War logic, nuclear and otherwise, imagined these islands as empty. Attending to the forced evacuations that enabled this illusion and its attendant fantasy of a non-imperial US, Oldenziel invites us to contemplate the labor geographies and technological systems that underwrote America’s global Cold War thrust. Nationalisms powered or reinvigorated by nuclear weapons obscured the colonial relationships necessary to their existence. Nuclear states mined their fuel in colonized territories and tested their bombs in imperial waters. My essay suggests how agencies and treaties that sought to define the global nuclear order, such as the International Atomic Energy Agency and the Nuclear Non-Proliferation Treaty, claimed to temper Cold War moral injunctions with postcolonial ones. Yet the specter of planetary destruction conveyed a certain temporal and material urgency that could serve as a powerful trump. The nuclear imperatives that drove the permanent removal of Kwajalein residents, discussed in Oldenziel’s essay, also supported South Africa’s efforts to build international legitimacy while remaining the West’s last colonial power. Portraying nuclear development, “the market,” and their relationship as apolitical terrains unsuited for anti-colonial claimsmaking, the apartheid state crafted commercial circuits that entangled its uranium with American, European, and Japanese nuclear systems. I argue that such entanglements reverberate into the present.

#### Global nuclear power rests genocidal nuclear colonialism of indigenous peoples. Refusal to consider the impacts of mining, disposal, and testing justifies the destruction of entire peoples for energy luxury. The alternative is to refuse the affirmative’s call for nuclear production and adopt the standpoint of the oppressed.

Endres 9—Danielle Endres, Communication at Utah [“The Rhetoric of Nuclear Colonialism” *Communication and Critical/Cultural Studies* 6 (1) p. 39-42]

Since the Manhattan Project, we have seen the Janus-faced development of nuclear technologies capable both of devastating the populations of Hiroshima and Nagasaki and of providing energy to cities and submarines. Whether the resulting technologies of nuclear production\*nuclear weapons and nuclear power\*are ultimately beneficial or harmful for society (as examined by early nuclear communication scholarship on the relationship between nuclear technologies and democracy) remains controversial.1 Although much public debate over nuclear technologies has focused on the consequences of nuclear power and weapons, increasingly these debates are turning to discussion of the localized health, environmental, and cultural legacies of nuclear production from cradle to grave. Every stage in the nuclear production process, from uranium mining and milling to fission reactors to nuclear weapons development, produces radioactive waste that, unless safely contained, will continue to emit unsafe levels of radiation for generations to come. The turn to examining the environmental consequences of nuclear production illustrates the disproportionate effects of our nuclear era on local indigenous populations. Nuclear weapons and nuclear power have devastating consequences for local populations surrounding the sites of nuclear production, particularly for indigenous people. Donald Grinde and Bruce Johansen, Grace Thorp and Valerie Kuletz have used a term coined by Ward Churchill and Winona LaDuke\*radioactive or nuclear colonialism\*to describe the disproportionate destruction of indigenous people and their land as a result of uranium mining and nuclear weapons development.2 Nuclear colonialism is a system of domination through which governments and corporations target indigenous peoples and their lands to maintain the nuclear production process. According to LaDuke, ‘‘much of the world’s nuclear industry has been sited on or near Native lands’’ including reservation, treaty-guaranteed or sacred lands.3 This system operates at the expense of the health of indigenous peoples, their cultural survival and their self-determination. Although there is sufficient evidence that nuclear colonialism is an empirically verifiable phenomenon, previous studies do not attend to a crucial aspect of this phenomenon, which is how nuclear colonialism is perpetuated through public policy deliberation and corporate discourses. In this essay, I argue that nuclear colonialism is significantly a rhetorical phenomenon that employs particular discursive strategies for enabling the perpetuation of nuclearism, continuation of colonialism, and deliberate exclusion of indigenous voices from decision-making. These strategies are successful, in part, due to the contested nature of indigenous nationhood and the public’s benign neglect of indigenous lands and peoples. The first section of this essay illustrates nuclear colonialism as an historical and empirical phenomenon, particularly in the US. Next, I illustrate nuclear colonialism’s reliance on two interconnected sets of discourse practices: colonialism and nuclearism. In the third section, I examine the 2002 Yucca Mountain high-level nuclear waste site authorization controversy to reveal the rhetorical strategies of nuclear colonialism, their consequences, and their continuing legacies. Nuclear Colonialism Before attending to the rhetorical nature of nuclear colonialism, it is important to emphasize the scope and material effects of nuclear technologies on indigenous peoples and their lands. This is a history of systematic exploitation and indigenous resistance, spanning from the 1940s to present. As the Indigenous Environmental Network writes, the nuclear industry has waged an undeclared war against our Indigenous peoples and Pacific Islanders that has poisoned our communities worldwide. For more than 50 years, the legacy of the nuclear chain, from exploration to the dumping of radioactive waste has been proven, through documentation, to be genocide and ethnocide and a deadly enemy of Indigenous peoples. . . . United States federal law and nuclear policy has not protected Indigenous peoples, and in fact has been created to allow the nuclear industry to continue operations at the expense of our land, territory, health and traditional ways of life. . . . This disproportionate toxic burden\*called environmental racism\*has culminated in the current attempts to dump much of the nation’s nuclear waste in the homelands of the Indigenous peoples of the Great Basin region of the United States.4 From an indigenous perspective, the material consequences of nuclear colonialism have affected the vitality of indigenous peoples. This can be seen clearly in both uranium mining and nuclear testing. Uranium mining is inextricably linked with indigenous peoples. According to LaDuke, ‘‘some 70 percent of the world’s uranium originates from Native Communities.’’5 Within the US, approximately 66 percent of the known uranium deposits are on reservation land, as much as 80 percent are on treaty-guaranteed land, and up to 90 percent of uranium mining and milling occurs on or adjacent to American Indian land.6 To support the federal government’s desire for nuclear weapons and power production, the Bureau of Indians Affairs (BIA) has worked in collusion with the Atomic Energy Commission and corporations such as Kerr-McGee and United Nuclear to negotiate leases with Navajo, Lakota and other nations for uranium mining and milling on their land between the 1950s to the present.7 BIAnegotiated leases are supported by the complex body of Indian Law, which I will demonstrate enables federal intrusion into American Indian lands and governmental affairs. These leases are heavily tilted in favor of the corporations so that American Indian nations received only about 3.4 percent of the market value of the uranium and low paid jobs.8 Uranium mining has also resulted in severe health and environmental legacies for affected American Indian people and their lands. From uranium mining on Navajo land, there have been at least 450 reported cancer deaths among Navajo mining employees.9 Even now, the legacy of over 1000 abandoned mines and uranium tailing piles is radioactive dust that continues to put people living near tailing piles at a high risk for lung cancer.10 The history of exploitation and resistance continues with nuclear weapons production. As nuclear engineer Arjun Makhijani argues, ‘‘all too often such damage has been done to ethnic minorities or on colonial lands or both. The main sites for testing nuclear weapons for every declared nuclear power are on tribal or minority lands.’’11 From 1951 to 1992, over 900 nuclear weapons tests were conducted on the Nevada Test Site (NTS)\*land claimed by the Western Shoshone under the 1863 Treaty of Ruby Valley. The late Western Shoshone spiritual leader Corbin Harney proclaimed Western Shoshone to be ‘‘the most nuclear bombed nation in the world.’’12 According to Western Shoshone Virginia Sanchez, indigenous people may have suffered more radiation exposure because of their land-linked lifestyle of ‘‘picking berries, hunting and gathering our traditional foods,’’ resulting in ‘‘major doses of radiation.’’13 Yet, the federal government and legal system have made only token gestures toward compensating victims of nuclear testing. The Radiation Exposure Compensation Act (RECA) has strict qualification guidelines that have excluded many downwinders from receiving compensation.14 In addition to the effects on human health from nuclear testing, there is also an environmental toll through contaminated soil and water, which could harm animal and plant life.15

### 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

#### Voth concedes status quo solves

Voth 12 (Jeffrey M. Voth is the president of Herren Associates leading a team of consultants advising the federal government on issues of national security, energy and environment, health care and critical information technology infrastructure, George Washing University Homeland Security Policy Institute, “In Defense of Energy—A Call to Action”, http://securitydebrief.com/2012/04/11/in-defense-of-energy-a-call-to-action/, April 11, 2012, LEQ)

Last month, the Pentagon released its widely anticipated roadmap to transform operational energy security. As published in a [World Politics Review briefing](http://www.worldpoliticsreview.com/articles/11665/the-pentagon-must-internalize-energy-security-requirements), energy security has become a strategic as well as an operational imperative for U.S. national security. As tensions continue to escalate with Iran in the Strait of Hormuz, it has become clear that the U.S. military urgently requires new approaches and innovative technologies to improve fuel efficiency, increase endurance, enhance operational flexibility and support a forward presence for allied forces while reducing the vulnerability inherent in a long supply-line tether. Assured access to reliable and sustainable supplies of energy is central to the military’s ability to meet operational requirements globally, whether keeping the seas safe of pirates operating off the coast of Africa, providing humanitarian assistance in the wake of natural disasters in the Pacific or supporting counterterrorism missions in the Middle East.

From both a strategic and an operational perspective, the call to action is clear. Rapid employment of energy-efficient technologies and smarter systems will be required to transform the military’s energy-security posture while meeting the increasing electric-power demands required for enhanced combat capability. As recently [outlined by Chairman of the Joint Chiefs of Staff Gen. Martin Dempsey](http://www.youtube.com/watch?v=yeh5c63tnWk), “Without improving our energy security, we are not merely standing still as a military or as a nation, we are falling behind.”

#### \*\*\*Wake’s Card Stops Here\*\*\*

[The implementation plan](http://energy.defense.gov/), issued by Defense Secretary Leon E. Panetta, outlines a multi-pronged strategy to reduce demand, secure diverse options beyond traditional fossil fuels, and build considerations for energy security into all military planning. The operational energy implementation plan also creates an executive board to oversee progress toward an energy secure force. Highlights of goals established by each service include:

Army to have 16 “[Net Zero](http://www.armyeitf.com/)” installations by 2020 and 25 by 2030;

Navy to [reduce fuel consumption](http://greenfleet.dodlive.mil/energy/task-force-energy/) afloat by 15 percent by 2020;

Air Force to [increase aviation energy efficiency](http://www.safie.hq.af.mil/shared/media/document/AFD-091208-026.pdf) by 10 percent by 2020; and

Marine Corps to [increase energy efficiency on the battlefield](http://www.marines.mil/community/Documents/USMC%20Expeditionary%20Energy%20Strategy%20%20Implementation%20Planning%20Guidance.pdf) by 50 percent by 2025.

In addition to working with the services to improve their consumption baselines, develop department-wide energy performance metrics, and identifying technology gaps, the implementation plan outlines recommendations in the following key areas:

[Improving operational energy](http://energy.defense.gov/OES_report_to_congress.pdf) security at fixed installations;

Promoting the development of [alternative fuels](http://www.defense.gov/news/newsarticle.aspx?id=66315);

Incorporating energy security considerations into [requirements and acquisitions](https://acc.dau.mil/ILC_EEK); and

Adapting [policy, doctrine, education, etc](http://energy.defense.gov/Memorandum_Supporting_The_Mission_with_Operational_Energy.pdf). to support reduced demand of energy.

Beginning with the clear vision of an energy-secure force outlined by the U.S. military leadership and cultural changes adopted by operational commanders, our military is beginning to embrace energy as a strategic resource. The Defense Department will need to extend strategic technology partnerships throughout the federal government and academia as well as with allied nations, including agreements with the newly established [Advanced Research Projects Agency-Energy](http://arpa-e.energy.gov/) within the U.S. Department of Energy. Finally, aggressive legislative, acquisition and operational energy-security mandates will need to be enforced to support the Defense Department’s broader transformational objectives.

#### So does Freed --- all these cards are about existing DOD energy efficiency measures.

Freed 12 (Josh Freed, Vice President for Clean Energy, Third Way, “Improving capability, protecting 'budget”, http://energy.nationaljournal.com/2012/05/powering-our-military-whats-th.php, May 21, 2012, LEQ)

As Third Way explains in a digest being released this week by our [National Security Program](http://www.thirdway.org/programs/national_security_program), the [Pentagon’s efforts](http://energy.defense.gov/Operational_Energy_Strategy_Implementation_Plan.pdf) to reduce energy demand and find alternative energy sources could keep rising fuel costs from encroaching on the budgets of other important defense programs. And the payoff could be massive. The Air Force has already been able to implement behavioral and technology changes that will reduce its fuel costs by $500 million over the next five years. The Army has invested in better energy distribution systems at several bases in Afghanistan, which will save roughly $100 million each year. And, using less than 10% of its energy improvement funds, the Department has begun testing advanced biofuels for ships and planes. This relatively small investment could eventually provide the services with a cost-effective alternative to the increasingly expensive and volatile oil markets.

These actions are critical to the Pentagon’s ability to focus on its defense priorities. As [Secretary Panetta recently pointed out](http://www.eenews.net/public/Greenwire/2012/05/03/1), he’s facing a $3 billion budget shortfall caused by “higher-than-expected fuel costs.” The Department’s energy costs could rise even further if action isn’t taken. DOD expects to spend $16 billion on fuel next year. The [Energy Information Administration predicts the price of oil will rise 23% by 2016](http://www.eia.gov/forecasts/aeo/er/pdf/0383er%282012%29.pdf), without a major disruption in oil supplies, like the natural disasters, wars, and political upheaval the oil producing states have seen during the last dozen years. Meanwhile, the Pentagon’s planned budget, which will remain flat for the foreseeable future, will require significant adjustment to the Department’s pay-any-price mindset, even if sequestration does not go into effect. Unless energy costs are curbed, they could begin to eat into other budget priorities for DOD.

In addition, the Pentagon’s own [Defense Science Board acknowledges that using energy more efficiently makes our forces more flexible and resilient in military operations](http://www.acq.osd.mil/dsb/reports/ADA477619.pdf), and can provide them with greater endurance during missions. Also, by reducing energy demand in the field, [DOD can minimize the number of fuel convoys that must travel through active combat zones, reducing the chances of attack to avoiding casualties and destruction of material](http://money.cnn.com/2011/06/14/news/economy/military_energy_strategy/index.htm). At our domestic bases, DOD is employing energy conservation, on-site clean energy generation, and smart grid technology to prevent disruptions to vital activities in case the civilian grid is damaged by an attack or natural disaster. The bottom line is, developing methods and technologies to reduce our Armed Forces’ use of fossil fuels and increase the availability of alternative energy makes our military stronger. That’s why the Pentagon has decided to invest in these efforts. End of story.

#### \*\*\*Wake’s Card Ends Here\*\*\*

The Department’s efforts to reduce energy consumption and incorporate alternative energy are just now hitting full stride, after several years of setting up the offices and procedures that will be needed to accomplish its goals. But these efforts have already produced tangible benefits to military capability and cost-cutting. Because of their clearly-demonstrated value, DOD energy initiatives have (for the most part) been able to deflect a handful of attacks from politically-motivated opponents of clean energy. Congress should continue to support these initiatives, and provide the services with the tools they need to modernize their energy systems, improve capability, and cut costs.

#### They don’t solve—internal links are about oil, SMRs produce electricity—trades off at best with a small amount of diesel electric, not with tanks and planes.

### 1NC 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)).

#### Negative feedbacks solve

Singer et al. 11 [S Fred, PhD, a distinguished atmospheric physicist and first director of the U.S. Weather Satellite Service, Craig Idso, editor of the online magazine CO2 Science and author of several books and scholarly articles on the effects of carbon dioxide on plant and animal life, Robert M Carter, marine geologist and research professor at James Cook University in Queensland, Australia Climate Change Reconsidered: 2011 Interim Report]

In the 2009 NIPCC report, Idso and Singer (2009) discussed the plausibility of a multistage negative feedback process whereby warming-induced increases in the emission of dimethyl sulfide (DMS) from the world‘s oceans tend to counteract any initial impetus for warming. The basic tenet of this hypothesis is that the global radiation balance is significantly influenced by the albedo of marine stratus clouds (the greater the cloud albedo, the less the input of solar radiation to the Earth‘s surface). The albedo of these clouds, in turn, is known to be a function of cloud droplet concentration (the more and smaller the cloud droplets, the greater the cloud albedo and the reflection of solar radiation), which is dependent upon the availability of cloud condensation nuclei on which the droplets form (the more cloud condensation nuclei, the more and smaller the cloud droplets). And in completing the negative feedback loop, the cloud condensation nuclei concentration often depends upon the flux of biologically produced DMS from the world‘s oceans (the higher the sea surface temperature, the greater the sea-to-air flux of DMS).

Since the publication of the 2009 NIPCC report, additional empirical evidence has been found to support the several tenets of the DMS feedback process. Qu and Gabric (2010), for example, introduce their contribution to the subject by stating, ―dimethylsulfide (DMS) is the main volatile sulfur [species] released during the formation and decay of microbial ocean biota and ―aerosols formed from the atmospheric conversion of DMS to sulfate and methanesulfonic acid can exert a climate cooling effect directly by scattering and absorbing solar radiation and indirectly by promoting the formation of cloud condensation nuclei and increasing the albedo of clouds, thus reflecting more solar radiation back into space.

Working with climate and DMS production data from the region of the Barents Sea (70–80°N, 30– 35°E) obtained over the period 1998 to 2002, Qu and Gabric employed a genetic algorithm to calibrate chlorophyll-a measurements (obtained from SeaWiFS satellite data) for use in a regional DMS production model. Then, using GCM temperature outputs for the periods 1960–1970 (pre-industry CO2 level) and 2078–2086 (triple the pre-industry CO2 level), they calculated the warming-induced enhancement of the DMS flux from the Barents Sea region. The two researchers report, ―significantly decreasing ice coverage, increasing sea surface temperature and decreasing mixed-layer depth could lead to annual DMS flux increases of more than 100% by the time of equivalent CO2 tripling (the year 2080). In commenting on their findings, they state, ―such a large change would have a great impact on the Arctic energy budget and may offset the effects of anthropogenic warming that are amplified at polar latitudes. What is more, they write, ―many of these physical changes will also promote similar perturbations for other biogenic species (Leck et al., 2004), some of which are now thought to be equally influential to the aerosol climate of the Arctic Ocean. Thus it can be appreciated that DMS production in a warming world—especially when augmented by analogous biogenic phenomena—may provide a large moderating influence on the primary impetus for warming that is produced by mankind‘s emissions of CO2 and other greenhouse gases.

Kim et al. (2010) write that DMS ―represents 95% of the natural marine flux of sulfur gases to the atmosphere (Bates et al., 1992; Liss et al., 1997), and they say it ―may be oxidized to form non sea-salt sulfate aerosols, which are known to act as cloud condensation nuclei and thereby exert a cooling effect by absorbing or scattering solar radiation. They cite Charlson et al. (1987), who first described the intriguing and important chain of events. They also note ―DMS is generated by intracellular or extracellular enzymatic cleavage of DMSP [dimethylsulfoniopropionate] by DMSP-lyase, which is synthesized by algae and bacteria, following DMSP secretion from producer cells or release following autolysis or viral attack, while noting that ―grazing activity can also result in DMSP conversion to DMS if DMSP and DMSP-lyase are physically mixed following grazing, citing Stefels et al., 2007, and Wolfe and Steinke, 1996.

Working in the coastal waters of Korea from 21 November to 11 December 2008, the 14 Korean scientists utilized 2,400-liter mesocosm enclosures to simulate, in triplicate, three sets of environmental conditions—an ambient control (~400 ppm CO2 and ambient temperature), an acidification treatment (~900 ppm CO2 and ambient temperature), and a greenhouse treatment (~900 ppm CO2 and ~3°C warmer-than-ambient temperature)—and within these mesocosms they initiated phytoplankton blooms by adding equal quantities of nutrients to each mesocosm on day 0. For 20 days thereafter they measured numerous pertinent parameters within each mesocosm. This work revealed, as they describe it, that ―total accumulated DMS concentrations (integrated over the experimental period) in the acidification and greenhouse mesocosms were approximately 80% and 60% higher than the values measured in the control mesocosms, respectively, which they attribute to the fact that, in their experiment, ―autotrophic nanoflagellates (which are known to be significant DMSP producers) showed increased growth in response to elevated CO2 and ―grazing rates [of microzooplankton] were significantly higher in the treatment mesocosms than in the control mesocosms. In the concluding paragraph of their paper, they write, ―the key implication of our results is that DMS production resulting from CO2-induced grazing activity may increase under future high CO2 conditions, concluding that ―DMS production in the ocean may act to counter the effects of global warming in the future.

## \*\*\* 2NC

### 1NC Colonization Defense

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

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

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

### 2NC Solvency

#### And, more evidence—SPIDERS uses the best available context-specific renewable technology and distributed generation to provide a secure microgrid.

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]

Johnson shares that planners are examining the relationship between the interface with the microgrid control system and the base’s enterprise network. Of particular interest is how that relationship would open the microgrid to vulnerabilities from outside the installation. Issues include the types of communications traffic that would be allowed in and out of the microgrid control system network.

According to its guidance, SPIDERS’ primary objectives are to protect task-critical assets from power loss due to cyberattack; integrate renewable and other distributed generational electricity to power task-critical assets in times of emergency; sustain critical operations during prolonged power outages; and manage installation electrical power consumption to reduce petroleum demand and carbon footprint.

SPIDERS will exploit existing energy assets such as solar arrays, wind generators and other renewable technologies as well as diesel generators to provide electricity more efficiently than if backup diesel generators alone were used. Renewable energy generators remain online constantly, providing electricity from alternate sources during opportune conditions such as windy or sunny days. Johnson points out, however, that most renewable energy resources trip offline when the main grid crashes. The microgrid allows the renewable power to stay online while maintaining necessary safety measures.

The program might tweak the bases’ energy sources by upgrading a legacy generator that lacks the necessary capacity, for example. Otherwise, it will focus on existing assets. Johnson emphasizes that SPIDERS will be energy-source agnostic.

#### And—Prefer our evidence—the Pentagon Official IN CHARGE OF BASES supports the CP and think it solves—prefer that to their random studies and industry hacks

Karol 12 [Writer and Editor for TakePart.com, a website devoted to socially relevant news, August, http://news.yahoo.com/u-militarys-secret-weapon-going-green-181348275.html]

“The White House announced Tuesday it is inviting contract proposals from green energy firms to boost the Army’s use of renewable energy,” said [The Hill](http://thehill.com/blogs/e2-wire/e2-wire/242593-army-announces-renewable-energy-contracts-as-white-house-continues-green-push). “The administration is making $7 billion available for the U.S. Army Corps of Engineers to spend on locally-generated biomass, geothermal, solar or [wind energy](http://www.takepart.com/article/2012/08/02/mitt-romney-will-end-tax-credit-clean-wind-energy) for up to 30 years.”

“The move is part of a broader White House-led push to green the armed forces, over GOP opposition, which claims the efforts are a waste of taxpayer dollars. The Defense Department has set ambitious targets, aiming for renewable sources to account for 25 percent of its energy by 2025, with the Army working toward getting 1 gigawatt of power from green sources by that year.”

This follows on the heels of a report from [Forbes](http://www.forbes.com/sites/uciliawang/2012/08/06/u-s-military-opens-up-16m-acres-for-renewable-energy-projects/) that, “The U.S. Department of Defense plans to open up 16 million acres of its land for renewable energy development, which it hopes will create a boom of solar, wind and geothermal projects and provide clean power to military bases, the department announced Monday.”

“Defense Secretary Leon Panetta and the Interior Secretary Ken Salazar signed a memorandum of understanding to work together on promoting renewable energy generation projects on public land that has historically been restricted for military uses. About 13 million of those 16 million acres are located in western U.S., where a lot of solar, wind and geothermal power development already has been taking place on private and other types of public land.”

The article also notes that a majority of our military bases rely on traditional power grids and need to utilize backup generators during blackouts. This is one reason “The military has been vocal about its support of renewable energy, from electricity to transportation fuels, that it says will help it become more self-sufficient and reduce its vulnerabilities in the battle fields.”

“Renewable energy will allow a military base to maintain critical operations for weeks or months if an electric power grid goes down,” said Dorothy Robyn, deputy under secretary of defense for installations and environment.

While all this sounds great, not everyone is in agreement.

[NPR](http://www.npr.org/2012/07/05/156325905/militarys-green-energy-criticized-by-congress) reported that, “The military says it's dangerous to depend exclusively on fossil fuels, and has launched a program to develop alternative fuels for use by military vehicles. Energy consumption is a big expense for the Pentagon. But some members of Congress don't think the military should be a laboratory for finding energy alternatives, and say the military should not be spending money on this kind of research at a time when defense dollars are shrinking.”

The [National Journal](http://www.nationaljournal.com/energy/insiders-gop-won-t-stop-pentagon-s-green-energy-push-20120725) made this observation more explicit last month, saying, “Republicans in both the House and Senate this year have proposed cutting funds for alternative-energy programs in the defense authorization bill. But these efforts won’t gain much traction . . . In particular, arguing in favor of cutting military biofuels spending becomes an uphill battle when Pentagon officials, military veterans, and former lawmakers are saying that the spending is needed to save lives in war zones . . . Pentagon officials have long argued that alternative energy can save both money—by reducing dependence on oil—and lives, because American fuel convoys are often targeted in attacks.”

And the naysayers may be too late anyway.

The [Department of Defense](http://www.defense.gov/home/features/2010/1010_energy/) website has a landing page dedicated to over a dozen articles (plus a link to a couple hundred more in its digital archive) with topics such as “Naval Station Opens Green Training Facility,” DOD Must Have Petroleum Fuel Alternatives,” “Air Force Moves Forward With Green Energy.”

It appears that the convoys, planes, and ships are already well on their way to a green future.

### AT: Too Slow/Tech Fails

#### The tech is here—workable demonstrations are coming online this year

Sandia Labs 12 [Sandia National Laboratories is a multi-program laboratory operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin company, for the DOE’s National Nuclear Security Administration, https://share.sandia.gov/news/resources/news\_releases/spiders/]

The first SPIDERS microgrid will be implemented at Joint Base Pearl Harbor Hickam in Honolulu, and will take advantage of several existing generation assets, including a 146-kW photovoltaic solar power system, and up to 50 kW of wind power. The integrator for the project has been selected and the final design and construction process is underway.

The second installation, at Fort Carson, is much larger and more complex and will integrate an existing 2 MW of solar power, several large diesel generators and electric vehicles. Large-scale electrical energy storage will also be implemented to ensure microgrid stability and to reduce the effects of PV variability on the system. Camp H.M. Smith, the most ambitious project, will rely on solar and diesel generators to power the entire base, which will be its own self-sufficient 5 MW microgrid when the national grid is unavailable.

Integration and implementation are scheduled through 2014. The goal is to install the circuit level demonstration at Pearl Hickam and Fort Carson next year, with Camp Smith installed in 2013.

### AT: Diesel/Convoys

#### Second, they don’t solve either—the air force is *70 percent* of fuel use…and last I checked, planes aren’t battery powered

Peck 10 [Interview with Shannon Burke, head of the pentagon’s Energy Office, http://e360.yale.edu/feature/new\_mission\_for\_us\_military\_breaking\_its\_dependence\_on\_oil/2348/]

For example, if you look at the numbers, they can hide some really important truths. Our energy use in theater right now is probably 70 percent for Air Force. So you’d say right away, “Well, you’ve got to put all your focus on the Air Force, because that’s your big consumer.” And that’s certainly true. But you have to remember why we’re there — we’re fighting a war on the ground. So the 30 percent being used by the ground force is about their capability in the actual firefight. They can’t be there without the Air Force; the Air Force is moving in all their equipment. But that 30 percent is critical to our military operations. So, if you just went on the numbers, and you set our metrics by that, you might miss where you’re going to affect the point of our spear.

I just recently visited Transportation Command, which handles all of the military’s mobility. One of the most significant energy savings they’ve made — and they’ve made all kinds of technological investments from software to retrofits of the hardware — has been changing the way they actually operate. They changed their routes, they use ships and planes instead of just planes — and they got significant fuel savings.

### 2NC—SMRS Worse

#### We have comparative evidence—SMRS create more devastating attacks than conventional fuel—nuclear waste increases the risk of catastrophe

American Security Project 12 [non-profit, bipartisan public policy and research organization dedicated to fostering knowledge and understanding of a range of national security issues Matthew Baker, <http://americansecurityproject.org/blog/2012/do-small-modular-reactors-present-a-serious-option-for-the-militarys-energy-needs/>]

Unfortunately all the hype surrounding SMRs seems to have made the proponents of SMR technology oblivious to some of its huge flaws.

Firstly like large reactors, one of the biggest qualms that the public has to nuclear is problems associated with nuclear waste. A more decentralized production of nuclear waste inevitably resulting from an increase in SMRs production was not even discussed. The danger of transporting gas into some military bases in the Middle East is already extremely volatile; dangers of an attack on the transit of nuclear waste would be devastating.

### 2NC Solves Warming

#### It’s the closest we’ve got to a silver bullet.

Alok Jha, 3/13/2009. Green technology correspondent for the Guardian (UK). “'Biochar' goes industrial with giant microwaves to lock carbon in charcoal,” The Guardian, <http://www.guardian.co.uk/environment/2009/mar/13/charcoal-carbon>.

Giant microwave ovens that can "cook" wood into charcoal could become our best tool in the fight against global warming, according to a leading British climate scientist. Chris Turney, a professor of geography at the University of Exeter, said that by burying the charcoal produced from microwaved wood, the carbon dioxide absorbed by a tree as it grows can remain safely locked away for thousands of years. The technique could take out billions of tonnes of CO2 from the atmosphere every year. Fast-growing trees such as pine could be "farmed" to act specifically as carbon traps — microwaved, buried and replaced with a fresh crop to do the same thing again. Turney has built a 5m-long prototype of his microwave, which produces a tonne of CO2 for $65. He plans to launch his company, Carbonscape, in the UK this month to build the next generation of the machine, which he hopes will process more wood and cut costs further. He is not alone in touting the benefits of this type of charcoal, known as biochar or biocharcoal. The Gaia theorist, James Lovelock, and Nasa's James Hansen have both been outspoken about the potential benefits of biochar, arguing that it is one of the most powerful potential solutions to climate change. In a recent paper, Hansen calculated that producing biocharcoal by current methods of burning waste organic materials could reduce global carbon dioxide levels in the atmosphere by 8ppm (parts per million) over the next 50 years. That is the equivalent of three years of emissions at current levels. **Turney said biochar was the closest thing scientists had to a silver-bullet solution to climate change**. Processing facilities could be built right next to forests grown specifically to soak up CO2. "You can cut trees down, carbonise them, then plant more trees. The forest could act on an industrial scale to suck carbon out of the atmosphere." The biochar could be placed in disused coal mines or tilled into the ground to make soil more fertile. Its porous structure is ideal for trapping nutrients and beneficial micro-organisms that help plants grow. It also improves drainage and can prevent up to 80% of greenhouse gases such as nitrous oxides and methane from escaping from the soil. In a recent analysis of geo-engineering techniques published in the journal Atmospheric Chemistry, Tim Lenton, a climate scientist at the University of East Anglia, **rated producing charcoal as the best technological solution to reducing CO2 levels**. He compared it to other geo-engineering techniques such as dumping iron in oceans or seeding clouds to reflect the sun's radiation and calculated that by 2100 a quarter of the effect of human-induced emissions of CO2 could be sequestered with biochar production from waste organic matter, giving a net reduction of 40ppm in CO2 concentration. Johannes Lehmann of Cornell university has calculated that it is realistically possible to fix 9.5bn tonnes of carbon per year using biochar. The global production of carbon from fossil fuels stands at 8.5bn tonnes.

#### Solves quickly—we’d be out of the danger zone by the middle of the century.

Tim Flannery, 1/11/2008. Division of Environmental and Life Sciences Macquarie Uni. “Australian of the Year 2007, Tim Flannery talks bio char and why we need to move into the renewable age,” Beyond Zero Emissions, <http://www.beyondzeroemissions.org/2008/03/19/tim-flannery-australian-of-the-year-2007-talks-bio-char-why-we-need-to-move-into-the-renewable-age>.

Matthew Wright: In a recent address to the American Geophysical Union, Dr. James Hanson from NASA said that we need to go below 350 parts per million to have a stable atmosphere that we are used to experiencing for our agricultural needs, and our biodiversity and ecological systems. In terms of your call about trying to aim for say 5% sequestration per year over 20 years in order to remove that carbon debt, if we can get that going, how do you see, where do you see us going for a stable climate, a safe climate that can continue and maintain the huge populations that we've got around the world now?

Tim Flannery: Well that's a very good question. I mean I suppose implicit in James Hansons' comments is the reality that we are living right now with unacceptable climate risk, very high levels of unacceptable risk, and we need to draw that down as quickly as we can. Now if you used these agri-char based technologies and you have your aggressive reaforestation projects for the worlds tropics, you could conceivably be drawing down in the order of 10 to 15 tonnes, gigatonnes sorry, of carbon per annum by about 2030. **At that rate we could bring ourselves down below the dangerous threshold as early as the middle of this century**, but whether the world can actually get its act together and do that is another matter. This is the first real directed experiment at planetary engineering that we are talking about here, and we don't really have the political structures in place to enable us to implement the technology that we already have. So I would see the change basically as a political one. Its a global political change and the Kyoto process that rolls out now from Potsdam this year and then Copenhagen next year will be the key factors in the success or failure of us humans to do that.

#### Sequestration through ag can offset a third of emissions—equivalent in magnitude to shifting to low-carbon energy.

Claire Schaffnit-Chatterjee, 9/19/2011. Deutsche Bank Research. “Mitigating climate change through agriculture,” [www.dbresearch.com/PROD/DBR\_INTERNET\_EN-PROD/PROD0000000000278568/Mitigating+climate+change+through+agriculture%3A+An+untapped+potential.pdf](http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD0000000000278568/Mitigating+climate+change+through+agriculture%3A+An+untapped+potential.pdf).

The IPCC estimates the global technical potential for GHG mitigation in agriculture production at 5.5 to 6 Gt of CO2 equivalent per year by 2030. These figures do not include improved energy efficiency, biofuels or other changes in demand. This theoretical reduction in emissions, assuming adoption of all technical options is derived mostly (89%) from carbon sequestration in soil, 9% from methane reduction in rice production and livestock/manure management and 2% from nitrous oxide reduction through better cropland management40. It does not take into account fossil fuel offsets from biomass use.¶ The economic potential, taking into account the costs involved, is naturally much lower and depends on carbon prices. For a range of USD 50 to 60 per ton of CO2 eq mitigated, agriculture has a mitigation potential of over 4 billion tons CO2 eq. Even at prices below USD 20 per ton of CO2 eq mitigated, the mitigation potential in agriculture is still substantial at over 1.5 billion tons of CO2 eq. The current price for carbon is 13 EUR per ton.¶ McKinsey identifies terrestrial carbon in agriculture/forestry as one of the three major areas of GHG abatement opportunities (at 12 billion tons of CO2 eq per year in 2030) next to energy efficiency (14 billion) and low-carbon energy supply (also 12 billion). This means that the agriculture/forestry sector accounts for one-third of the total economic abatement potential, while agriculture alone accounts for 12%. In comparison, most of the promising solutions for reducing emissions in the energy sector are still in development and unlikely to be widely used in the next years or maybe decades. Curbing GHG emissions caused by farming practices and deforestation should be cheaper41. Alternative energy systems have the important advantage of lowering GHG emissions by replacing fossil fuels. Many options in the energy sector are subsidized and benefit from high oil prices.¶ The agriculture and forestry sectors provide the crucial possibility of sequestering the carbon already in the atmosphere. Carbon capture and storage from energy-related emissions is technically possible but not doable on a large-scale until 2020 or so42. Most importantly, it is not designed to capture GHGs already present in the atmosphere, which only terrestrial carbon sequestration can do.

#### a. NOx traps heat at different wavelengths, reductions cause a disproportionate drop in GHG effects.

Science Newsline, 4/2/2012. “Fertilizer Use Responsible for Increase in Nitrous Oxide in Atmosphere,” <http://www.sciencenewsline.com/articles/2012040219260050.html>.

Limiting nitrous oxide emissions could be part of a first step toward reducing all greenhouse gases and lessening global warming, Boering said, especially since immediately reducing global carbon dioxide emissions is proving difficult from a political standpoint. In particular, **reducing nitrous oxide emissions can initially offset more than its fair share of greenhouse gas emissions overall**, since N2O traps heat at a different wavelength than CO2 and clogs a "window" that allows Earth to cool off independent of CO2 levels.¶ "On a pound for pound basis, it is really worthwhile to figure how to limit our emissions of N2O and methane," she said. "Limiting N2O emissions can buy us a little more time in figuring out how to reduce CO2 emissions."

### 2NC Overview

#### Speed is critical—rapid warming overwhelms adaptation.

Joseph Milton, 11/11/2010. PhD Evolutionary Biology @ St Andrews, science journalism @ City U London, writer for the Financial Times, New Scientist, Nature News, Research Fortnight, and Scientific American. “Rapid warming boosted ancient rainforest,” Scientific American, http://www.scientificamerican.com/article.cfm?id=rapid-warming-boosted-ancient.

Most scientists have assumed that, as carbon dioxide levels increase and the Earth warms, plant species diversity in the rainforests will start to dwindle, with [plants](http://www.scientificamerican.com/topic.cfm?id=plants) unable to adapt to the heat. But a new study suggests that the opposite may be true. In the past, rising atmospheric carbon dioxide and higher temperatures actually drove the evolution of far greater numbers of new rainforest plant species than were wiped out. ¶ But don't trade in your electric car for a gas-guzzler just yet--**if** rainfall drops as **temperatures** rise, or if they **rise too rapidly, the outcome** for rainforest diversity **could be much less positive**.¶ For clues to how rainforest diversity will be affected by increasing atmospheric carbon dioxide and the corresponding rise in temperatures, Carlos Jaramillo, a palaeobiologist at the Smithsonian Tropical Research Institute in Panama, and his colleagues decided to look at what happened during similar conditions in the past.¶ One such episode in Earth's history occurred 56.3 million years ago and is called the Palaeocene-Eocene Thermal Maximum (PETM). Within 10,000-20,000 years, the world warmed by 3-5 degrees Celsius and atmospheric carbon dioxide doubled to around two and a half times the levels we see today. These unusually warm conditions lasted for around 200,000 years. ¶ Pollen clues¶ To find out how this ancient climate change affected rainforest plants, Jaramillo and his team analyzed fossilized pollen trapped in rock cores from rainforests in Colombia and Venezuela. They spent seven years locating appropriate sites and taking samples, then used a battery of dating techniques to ensure that they were examining cores formed before, during and after the thermal maximum--a relatively narrow time window in geological terms. The results were published November 12 in Science.¶ Although some plant species disappeared, many more new species arose. That included entire families, suggesting that the increased temperatures and carbon dioxide levels actually boosted [biodiversity](http://www.scientificamerican.com/topic.cfm?id=biodiversity). "What we found was exactly the opposite of what we were expecting," says Jaramillo. "The diversity of the tropical forest increased really fast over a very short amount of time."¶ The pollen fossil record shows that some important plant families, such as Myrtaceae, which includes eucalyptus, and Passifloraceae--the passion flowers--made their first appearance during the thermal maximum. The tropics have remained the most species-diverse area of the world ever since.¶ This might sound like good news for the rainforest in the face of contemporary climate change. However, Guy Harrington, a palaeobiologist at the University of Birmingham, UK, warns that any positive effects on plant diversity could be canceled out if temperatures rise too quickly for plants to adapt. "**It's the rate--how fast you're turning up the heater--that's the most important thing**," he says.

### 2NC I/L Wall

#### AND—prefer our modeling—the Hadley Center model puts the rest to shame.

Olive Heffernan, February 2010. Editor of Nature Reports Climate Change. “Earth science: The climate machine,” Nature 463, 1014-1016.

This massive supercomputer at the UK Met Office in Exeter is home to what is **possibly the world's most sophisticated climate model**. Developed by researchers at the Hadley Centre, the Met Office's climate-change branch, the newly finished model will be put to its first big test over the coming months. It will run a series of climate simulations out to the year 2100 for the next report of the Intergovernmental Panel on Climate Change (IPCC), on the physical-science basis of climate change, which is due out in 2013.¶ Four years in the making, the model is known as HadGEM2-ES, short for the Hadley Centre Global Environmental Model, version two, with an added Earth-system component. It is one of a dozen Earth-system models under development worldwide that reach far beyond their distant forebears, which represented just the physical elements of the climate, such as air, sunlight and water. The new generation includes all that and much more: forests that can shrink or spread as conditions change; marine food webs that react as the oceans grow more acidic with carbon dioxide; aerosol particles in the atmosphere that interact with greenhouse gases, enhancing or sapping their warming power.¶ The Hadley Centre is at the forefront of efforts around the world to develop such complex climate models. "**It's really pushing the envelope**", says Andrew Weaver, a climate modeller at the University of Victoria in British Columbia, Canada.

### 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.

### 2NC—No Transition Impact

#### 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

## \*\*\* 1NR

### 1NR—Defense

**No water wars— their evidence is hupe.**

**Katz** **11**—Lecturer of Geography and Environmental Studies @ University of Haifa [Dr. David Katz (PhD in Natural Resource Policy & MA in Applied Economics @ University of Michigan), “Hydro-Political Hyperbole: Examining Incentives for Overemphasizing the Risks of Water Wars,” Global Environmental Politics, Volume 11, Number 1, February 2011, pp. 12-35]

Evidence and Perception

In sum, despite some instances of violent conflict over water, there is **little systematic ev**idence of war over water resources. Evidence for a deterministic relationship between water scarcity and the outbreak of armed conflict is **particularly weak**. Less ambitious claims that water shortages will contribute to insecurity, which can, in turn, lead to violent conflict, have more empirical support. Even here, however, the importance of water as a causal variable is questionable. Several studies have found that variables such as regime type and institutional capacity are much more important indicators of conflict potential, 43 and may have mitigating effects on any water-conflict link.

As a consequence of **accumulated research**, many scholars have concluded that **risks of water wars are low**, 44 and others have toned down or qualified their statements about the likelihood of future water wars.45 Some governmental reports have limited their contentions to highlighting that water scarcity can aggravate conflicts and increase insecurity,46 and many studies now emphasize water as a tool for **cooperation**.47 Warnings and predictions of imminent water wars continue to be commonplace, however. In a review of published academic literature, Gupta and van der Zaag find that articles on water conflict outnumber those on cooperation by nearly three to one, and are five times more likely to be cited.48

This article will now turn to offering possible explanations for the persistence and popularity of such declarations despite the bulk of expert opinion downplaying the risks of water wars.

Incentives to Stress a Water War Scenario

Incentives Presented in Existing Literature

Observers have noted that various actors may have incentives to stress or even **exaggerate** the risks of water wars. Lonergan notes, for instance, that in “many cases, the comments are little more than **media hype**; in others, statements have been made for **political reasons**.”49 Beyond mere acknowledgement of the possibility of such incentives, however, little research has attempted to understand what these incentives are and how they may differ between actors. An understanding of the different motivations of various groups of actors to stress the possibility of imminent water wars can help explain the continued seemingly disproportionate popularity of such messages and help to evaluate such warnings more critically.pg. 17-18 //1nc

**Prefer our evidence --- best data on these questions --- that outweights since its not biased by ideology.**

**Allouche 11**—Jeremy Allouche, research Fellow, water supply and sanitation @ Institute for Development Studies, former professor—MIT, PhD in International Relations from the Graduate Institute of International Studies [“The sustainability and resilience of global water and food systems: Political analysis of the interplay between security, resource scarcity, political systems and global trade,” *Food Policy*, Volume 36, Supplement 1, January 2011, Pages S3–S8, Science Direct]

The question of resource scarcity has led to many debates on whether scarcity (whether of food or water) will lead to conflict and war. The underlining reasoning behind most of these discourses over food and water wars comes from the Malthusian belief that there is an imbalance between the economic availability of natural resources and population growth since while food production grows linearly, population increases exponentially. Following this reasoning, neo-Malthusians claim that finite natural resources place a strict limit on the growth of human population and aggregate consumption; if these limits are exceeded, social breakdown, conflict and wars result. Nonetheless, it seems that **most empirical studies do not support any of these neo-Malthusian arguments**. Technological change and greater inputs of capital have dramatically increased labour productivity in agriculture. More generally, the neo-Malthusian view has suffered because during the last two centuries humankind has breached many resource barriers that seemed unchallengeable.

Lessons from history: alarmist scenarios, resource wars and international relations

In a so-called age of uncertainty, a number of alarmist scenarios have linked the increasing use of water resources and food insecurity with wars. The idea of water wars (perhaps more than food wars) is a dominant discourse in the media (see for example Smith, 2009), NGOs (International Alert, 2007) and within international organizations (UNEP, 2007). In 2007, UN Secretary General Ban Ki-moon declared that ‘water scarcity threatens economic and social gains and is a potent fuel for wars and conflict’ (Lewis, 2007). Of course, this type of discourse has an instrumental purpose; security and conflict are here used for raising water/food as key policy priorities at the international level.

In the Middle East, presidents, prime ministers and foreign ministers have also used this bellicose rhetoric. Boutrous Boutros-Gali said; ‘the next war in the Middle East will be over water, not politics’ (Boutros Boutros-Gali in Butts, 1997, p. 65). The question is not whether the sharing of transboundary water sparks political tension and alarmist declaration, but rather to what extent water has been a principal factor in international conflicts. The evidence seems quite weak. Whether by president Sadat in Egypt or King Hussein in Jordan, none of these declarations have been followed up by military action.

The governance of transboundary water has gained increased attention these last decades. This has a direct impact on the global food system as water allocation agreements determine the amount of water that can used for irrigated agriculture. The likelihood of conflicts over water is an important parameter to consider in assessing the stability, sustainability and resilience of global food systems.

None of the various and extensive databases on the causes of war show water as a casus belli. Using the International Crisis Behavior (ICB) data set and supplementary data from the University of Alabama on water conflicts, Hewitt, Wolf and Hammer found only seven disputes where water seems to have been at least a partial cause for conflict (Wolf, 1998, p. 251). In fact, about 80% of the incidents relating to water were limited purely to governmental rhetoric intended for the electorate (Otchet, 2001, p. 18).

As shown in The Basins At Risk (BAR) water event database, more than two-thirds of over 1800 water-related ‘events’ fall on the ‘cooperative’ scale (Yoffe et al., 2003). Indeed, if one takes into account a much longer period, the following figures clearly demonstrate this argument. According to studies by the United Nations Food and Agriculture Organization (FAO), organized political bodies signed between the year 805 and 1984 more than 3600 water-related treaties, and approximately 300 treaties dealing with water management or allocations in international basins have been negotiated since 1945 ( [FAO, 1978] and [FAO, 1984]).

The fear around water wars have been driven by a Malthusian outlook which equates scarcity with violence, conflict and war. There is however **no direct correlation between water scarcity and transboundary conflict**. Most specialists now tend to agree that the major issue is not scarcity per se but rather the allocation of water resources between the different riparian states (see for example [Allouche, 2005], [Allouche, 2007] and [Rouyer, 2000]). Water rich countries have been involved in a number of disputes with other relatively water rich countries (see for example India/Pakistan or Brazil/Argentina). The perception of each state’s estimated water needs really constitutes the core issue in transboundary water relations. Indeed, whether this scarcity exists or not in reality, perceptions of the amount of available water shapes people’s attitude towards the environment (Ohlsson, 1999). In fact, some water experts have argued that scarcity drives the process of co-operation among riparians ( [Dinar and Dinar, 2005] and [Brochmann and Gleditsch, 2006]).

In terms of **i**nternational **r**elations, the threat of water wars due to increasing scarcity **does not make much sense** in the light of the recent historical record. Overall, the water war rationale expects conflict to occur over water, and appears to suggest that violence is a viable means of securing national water supplies, an argument which is highly contestable.

The debates over the likely impacts of climate change have again popularised the idea of water wars. The argument runs that climate change will precipitate worsening ecological conditions contributing to resource scarcities, social breakdown, institutional failure, mass migrations and in turn cause greater political instability and conflict ( [Brauch, 2002] and [Pervis and Busby, 2004]). In a report for the US Department of Defense, Schwartz and Randall (2003) speculate about the consequences of a worst-case climate change scenario arguing that water shortages will lead to aggressive wars (Schwartz and Randall, 2003, p. 15). Despite growing concern that climate change will lead to instability and violent conflict, the evidence base to substantiate the connections is thin ( [Barnett and Adger, 2007] and [Kevane and Gray, 2008]).

### 1NR—Offense

**The UN will step in to resolve these water disputes.**

**Tir & Stinnett 12**—Professor of Poli Sci @ University of Colorado Boulder & Professor of Poli Sci @ University of Georgia [Dr. Jaroslav Tir & Dr. Douglas M. Stinnett [Jaroslav Tir & Dr. Douglas M. Stinnett, “Weathering climate change: Can institutions mitigate international water conflict?,” Journal of Peace Research 49(1) 2012, pg. 211–225]

For both the direct and indirect scenarios, climate change and attendant increases in water scarcity could heighten the risk of conflict. The most pessimistic version of this ‘neo-malthusian’ prediction is that water scarcity will lead to future full-scale ‘water wars’ (Gleick, 1993; Klare, 2001), a prediction criticized on both empirical and theoretical grounds (Lonergan, 1997; Gleditsch, 1998; Wolf, 1998). One important objection is that international cooperation over transboundary water sources has thus far been much more common than conflict (Yoffe,Wolf & Giordano, 2003). Additionally, international agreements can help manage transboundary rivers and thus discourage international conflict. The next section explores this in greater detail.

Transboundary river treaties and international conflict

While this study is motivated by the premise that water scarcity can contribute to militarized international conflict, we echo some of the skepticism regarding the ‘water wars’ scenario. As Salehyan (2008) observes, proponents of the deterministic view that environmental scarcity leads to armed conflict tend to overlook the role of human agency and the **moderating effects of institutions**. International institutions, in particular, are one important factor that helps explain why international conflicts over water are **comparatively rare**. Rather than simply being the opposite of conflict, formal international cooperation is one method for managing transboundary water sources and thereby **preventing the emergence and escalation** of international water disputes. We thus view international institutions as critical explanatory variables that have been **largely overlooked** in many discussions of international water conflict.5

International treaties have become an increasingly common means of managing transboundary rivers. International organizations, such as the **U**nited **N**ations and World Bank, often advocate the formation of river treaties. **In the case of tensions** in the Aral Sea basin, for example, the UN Secretary General has recommended a formal international accord to better manage the rivers feeding the Aral Sea (Heintz, 2010). This trend has been reflected in recent academic research investigating the conditions leading to river treaty formation (e.g. Tir & Ackerman, 2009; Stinnett & Tir, 2009; Tir & Stinnett, 2011). River treaties can specify how the river will be shared, set water quality targets, determine acceptable water withdrawal rates, or balance navigation, water level, and water quality needs; this will, in turn, help minimize the stresses placed on the river and make use more effective in the long run. By helping to resolve the underlying problems that occur because of the competing use of rivers—and which are likely to be exacerbated by increased water scarcity—treaties can alleviate political tensions and reduce international conflict (Wolf, Yoffe & Giordano, 2003). Pg. 214-215

**UN action preserves global governance**

**Thakur 11**—Professor of international relations @ Australian National University [Dr. Ramesh Thakur (Professor in the Institute of Ethics, Governance and Law, Griffith University), “U.N.-centered multilateralism vital,” The Daily Yomiuri, Aug. 1, 2011, pg. http://tinyurl.com/cymnn2g]

The **survival and vitality** of international organizations depend on two factors: the capacity to **change and adapt** and the quality of their governance. The world is interdependent in areas as diverse as financial markets, infectious diseases, climate change, terrorism, nuclear peace and safety, product safety, food supply and water tables, fish stocks and ecosystem resources. In addition to their potential for provoking interstate military conflicts, these are all drivers of human insecurity because of the threat they pose to individual lives and welfare.

As the above list shows, the world has changed enormously since the creation of the United Nations in 1945. A growing number of state and nonstate actors have to grapple with an expanding number, range and complexity of issues in an increasingly networked, deeply intertwined but also more fragmented world.

Multilateralism refers to collective, cooperative action by states to deal with common problems. All states benefit from a world in which agreed rules and common norms bind the behaviour of all actors. But **to remain viable**, international organizations must be reconstituted in line with 21st century principles of governance and legitimacy and be **capable of addressing contemporary challenges** effectively.

The U.N. record shows a remarkable capacity for policy innovation, institutional adaptation and organizational learning. In the theatre of world politics, the United Nations has played starring or supporting roles in preventing and managing conflicts, regulating armaments, championing human rights and international humanitarian law, liberating the colonized, providing economic and technical aid in the newly liberated countries, organizing elections, empowering women, educating children, feeding the hungry, sheltering the dispossessed and displaced, housing the refugees, tending to the sick, and coordinating disaster relief and assistance: all on a 24/7 basis. Backstage, the United Nations helps to coordinate and manage a myriad of mundane activities whose pervasive influence on our daily lives would startle most people if they paused to think about it.

That said, without continual structural and procedural reforms, the **legitimacy and performance deficits will accumulate** and there will be an intensifying crisis of confidence in the world's system of organized multilateralism centred on the United Nations. With respect to the use of force for example, the United Nations has failed to protect member states from attack and invasion by powerful countries, as in Iraq in 2003; failed to punish illegal warmakers, as in the same example; and is an uncertain reed for civilians to lean on for protection against atrocities.

There remains an urgent need for the United Nations to develop structures, procedures and spine for reliability, predictability and consistency in taking timely and decisive collective action to solve the pressing global problems and also anticipate future challenges. To date, the evolution of international organizations to facilitate robust global responses has lagged behind the emergence of collective action problems. These are global in scope and require global solutions, but the policy authority and legal capacity for coercive mobilization of the required resources for tackling them remain vested in states. The distribution of decision- making authority in the U.N. system remains frozen in the power equations of 1945, not 2011, let alone 2020. The growing influence of nonstate actors like markets, corporations and civil society finds little voice and no vote in U.N. bodies.

There is a mutually undermining gap between legitimacy and efficiency. The very feature that gives the United Nations its unique legitimacy--universal membership--makes it an inefficient body for making, implementing and enforcing collective decisions. This is exacerbated by the often bitter divisions between the global North and South. The Copenhagen conference on climate change, for example, was suboptimal in outcome in part because of their colliding worldviews.

The net result of these governance deficits is to disempower, disable and incapacitate joint decision-making for solving collective action problems. As a corollary, the fundamental challenge for the international community is how to restructure and reform the United Nations in order to **reposition it at the centre** of collective efforts to **manage current** and anticipated **global problems** over the coming decades.

Of course, the United Nations is not the only site of global governance. A recent serious contender for the premier forum of global economic governance is the G-20. Although it began with great initial promise in responding forcefully to the global financial crisis, by now it seems to have lost drive and focus and become yet another global photo-op for leaders: a substitute for instead of the engine of collective action.

Thus the real challenge is how to retain the positive attributes of the existing nodes of global governance while shedding their pathologies. One answer is to configure and operate either the G-20 or the United Nations as the hub of networked global governance. Whichever of the two succeeds in the task first will enjoy a considerable advantage in positioning itself at the centre of the new multilateral order.

By virtue of its universal membership, the United Nations has a head start but not an unbeatable one. For example, globalization has underwritten a rising standard of living and material prosperity throughout the world for several decades. But there is also growing divergence in income levels between countries and peoples. This has implications for social and political stability among and within states. No other body can tackle the pathologies of globalization more effectively, with greater legitimacy, lower transaction and compliance costs, and higher comfort levels for most countries as their organization, than the U.N. system.

But the United Nations' comparative advantage will wane steadily without major reforms of structure and procedure. The Security Council is unrepresentative in both permanent and elected membership, unanswerable to the peoples of the world, unaccountable to the General Assembly, not subject to judicial oversight, and has betrayed the high hopes placed in it in 1945. Those resorting to the use of force unilaterally need fear Security Council censure and punishment only rarely, while those who need international military assistance cannot rely on the Security Council for prompt and effective help.

In addition to a better permanent membership that reflects today's power balance, the Security Council must also be more representative of a broader constituency of interests in its elected members.

One of the best ways to empower the United Nation's member states is to empower the General Assembly by capacitating the office of its president. One concrete example of institutional innovation would be to create a new post of science adviser to the president of the General Assembly. The Assembly could also redraft the terms and conditions of the appointment of the Secretary General so as to make him coequally responsive to both the Security Council and the General Assembly.

Multilateral institutions must recognize and involve nonstate actors on the basis of criteria that ensure their legitimacy and effectiveness. By the same token, with influence on decisions come responsibility for the consequences and distributional impacts of the decisions. Similarly, the for-profit private sector too must take a greater interest in issues of international governance and underwrite the institutional providers of global public goods.

Based on human solidarity across borders and transcending national perspectives, the United Nations provides and manages the framework for bringing together the world's leaders to tackle the pressing problems of the day for the **survival**, development and welfare **of all peoples**, everywhere. Yet multilateralism is under serious challenge, from arms control to climate change, international criminal justice and the use of military force overseas. Therefore it is **critically important to reaffirm the U**nited **N**ations' **role** as the principal embodiment of the principle of multilateralism and the main forum for its pursuit. For it remains our best and only hope for unity-in-diversity in addressing problems without passports that require solutions sans visas.

The United Nations is the embodiment of the international community and the custodian of an internationalized human conscience. It represents the idea that virulent nationalism and the raw interplay of power must be mediated and moderated in an international framework of rules and norms. This is what makes the United Nations the centre for harmonizing the ubiquitous national interests to forging the elusive international interest.

**It’s failure places human survival at risk**

**Masciulli 11**—Professor of Political Science @ St Thomas University [Joseph Masciulli, “The Governance Challenge for Global Political and Technoscientific Leaders in an Era of Globalization and Globalizing Technologies,” Bulletin of Science, Technology & Society February 2011 vol. 31 no. 1 pg. 3-5]

What is most to be feared is enhanced global disorder resulting from the combination of **weak global regulations**; the unforeseen destructive consequences of **converging tech**nologies and economic globalization; military competition among the great powers; and the prevalent biases of short-term thinking held by most leaders and elites. But no practical person would wish that such a disorder scenario come true, given all the weapons of mass destruction (**WMD**s) available now or which will surely become available in the foreseeable future. As converging technologies united by IT, cognitive science, nanotechnology, and robotics advance synergistically in monitored and unmonitored laboratories, we may be blindsided by these future developments brought about by technoscientists with a variety of good or destructive or mercenary motives. The current laudable but problematic openness about publishing scientific results on the Internet would contribute greatly to such negative outcomes.

To be sure, if the global disorder-emergency scenario occurred because of postmodern terrorism or rogue states using biological, chemical, or nuclear WMDs, or a regional war with nuclear weapons in the Middle East or South Asia, there might well be a positive result for global governance. Such a global emergency might unite the global great and major powers in the conviction that a global concert was necessary for their survival and planetary survival as well. In such a global great power concert, basic rules of economic, security, and legal order would be uncompromisingly enforced both globally and in the particular regions where they held hegemonic status. That concert scenario, however, is flawed by the limited legitimacy of its structure based on the members having the greatest hard and soft power on planet Earth.

At the base of our concerns, I would argue, are **human proclivities for narrow, short-term thinking tied to** individual self-interest or corporate and **national interests** in decision making. For globalization, though propelled by technologies of various kinds, “remains an essentially human phenomenon . . . and the main drivers for the establishment and uses of disseminative systems are hardy perennials: profit, convenience, greed, relative advantage, curiosity, demonstrations of prowess, ideological fervor, malign destructiveness.” These human drives and capacities will not disappear. Their “manifestations now extend considerably beyond more familiarly empowered governmental, technoscientific and corporate actors to include even individuals: terrorists, computer hackers and rogue market traders” (Whitman, 2005, p. 104).

In this dangerous world, if people are to have their human dignity recognized and enjoy their human rights, above all, to life, security, a healthy environment, and freedom, we need new forms of comprehensive global regulation and control. Such **effective global leadership** **and governance** with robust enforcement powers **alone can adequately respond to destructive current global problems, and prevent new ones**. However, successful human adaptation and innovation to our current complex environment through the social construction of effective global governance will be a daunting collective task for global political and technoscientific leaders and citizens. For our global society is caught in “the whirlpool of an accelerating process of modernization” that has for the most part “been left to its own devices” (Habermas, 2001, p. 112). We need to progress in human adaptation to and innovation for our complex and problematical global social and natural planetary environments through global governance. I suggest we need to begin by ending the prevalent biases of short-termism in thinking and acting and the false values attached to the narrow self-interest of individuals, corporations, and states.

I agree with Stephen Hawking that the long-term future of the human race must be in space. It will be difficult enough to avoid disaster on planet Earth in the next hundred years, let alone the next thousand, or million. . . . There have been a number of times in the past when its survival has been a question of touch and go. The Cuban missile crisis in 1962 was one of these. The frequency of such occasions is likely to increase in the future. We shall need great care and judgment to negotiate them all successfully. But I’m an optimist. If we can avoid disaster for the next two centuries, our species should be safe, as we spread into space. . . . But we are entering an increasingly dangerous period of our history. Our population and our use of the finite resources of planet Earth, are growing exponentially, along with our technical ability to change the environment for good or ill. But our genetic code still carries the selfish and aggressive instincts that were of survival advantage in the past. . . . Our only chance of long term survival is not to remain inward looking on planet Earth, but to spread out into space. We have made remarkable progress in the last hundred years. But if we want to continue beyond the next hundred years, our future is in space.” (Hawking, 2010)

Nonetheless, to reinvent humanity pluralistically in outer space and beyond will require securing our one and only global society and planet Earth through effective global governance in the foreseeable future. And **our dilemma is that** the enforcement powers of **multilateral institutions are not likely to be strengthened because** of the competition for greater (relative, not absolute) hard and soft power by the **great** and major **powers**. They **seek** their **national** or alliance **superiority**, or at least, parity, for the sake of their state’s survival and security now. Unless the global disorder-emergency scenario was to occur soon—God forbid—the great powers will most likely, recklessly and tragically, leave global survival and security to their longer term agendas. Pg. 4-5

**AND, Scarcity encourages cooperation that spillsover to other issues**

**Hammoud 11**—MA in International Affairs @ Lebanese American University [Rayan Amine Hammoud, Water Scarcity As A Window of Opportunity For A Peaceful Settlement In The Middle East, A thesis Submitted in partial fulfillment of the requirements for the degree of Master of Arts in International Affairs, Lebanese American University, January 2011]

While water war scenarios in the Middle East are by all means viable and legitimate, not only based on past experiences but also on the basis of the current hardliner positions of the different parties, other perspectives may also be possible. Despite the history of violence in the region over the past century, it is evident that these manifestations have not brought us any closer to resolving the water dispute, and it is unlikely that future wars will carry any of the conflicting parties to a final and permanent cooperation. Additionally, unlike other elements of conflict, water emerges as the **only major factor** that accords no respect or consideration to the political, strategic, military or geographic characteristics or interests of the involved parties. Not only does the issue of water impose its presence and realities on the political and strategic agendas of the nations in the region, but it is also, more often than not the only issue with which political leaders cannot practice the game of patience or the adopt a of “wait-and-see”. Syria, for example, has adopted a posture of patience for over three decades in its negotiations with Israel, and Israel maintained a similar position during its occupation of South Lebanon for over two decades; but while questions pertaining to territory and borders can wait for as long as politicians find an interest in playing the waiting game, **water imposes its own rules**.

Severe water shortages cannot and do not wait, especially in times of severe droughts that may last for years. Additionally, the deterioration of water quality, a problem facing all nations in the region, is also another serious issue that can only be resolved through measures taken in **coordination** by the different conflicting players that share water sources and pathways (Khalifa, 2001; Priscoli & Wolf, 2009). Political players in the region may be convinced for ideological or other reasons that they may be able to win water conflicts in the long term, but severe water issues often have their own schedule and are unlikely to offer hawkish political leaders and war-oriented ideologists the leeway they hope to have to resolve the conflict by violent means. Ultimately, **peaceful alternatives must be considered**.

It is out of these considerations that the perspective and rationale of this dissertation evolved. While the conflict in the Middle East may be among the most complicated on the international level, Aytemiz (2001) points out that 40% of the world population share international rivers and basins and that on various occasions, enemies have had to pursue alternative **peaceful solutions** as the only viable means possible to deal with their water needs and pressures. This has even been the case among some nations that have fought multiple wars over historic, religious and ideological causes as is the case in the **Middle East** and other parts of the world, such as **Pakistan**, Bangladesh and **India**.

The main aim of this paper is not to explore the potential solutions for water crisis solutions in the Middle East. Rather, the main objective is to explore the possibility of utilizing the problems and issues associated with water resources, as a potential **window of opportunity** to bring the conflicting parties in the Middle East together toward a peaceful resolution. This approach differs from previous approaches to the Middle East conflict in at least two ways.

First of all, it does not assume that the question of water is a residual issue that will be resolved along with the bigger cooperation package over land and borders. Rather, it holds that the conflict over water and the nature of the water crisis can be used as a means to set the conflicting players in a mode of cooperation and coordination that will help them address their shared water needs peacefully and that may set the groundwork for a **wider peaceful resolution** in the long term.

Secondly, this approach assumes that the water crisis in the Middle East represents a window of opportunity because of the very nature of water itself. To elaborate, the issues of a water crisis are pressuring, overwhelming and immediate by their nature. In other words, this is an issue that **offers ideologists and politicians very little freedom** to exercise political patience and procrastination, especially when considering the magnitude and extent of the effects of water shortages and of thedeterioration of water quality on the economic and social interests of their constituencies. Pg. 4-6

\*Forces Hawks to negotiate

\*Water overrides ideological disputes

**Failure risks world war III**

**Sterling 11**—MA in European Studies [Lord Sterling BS. in Poli Sci and History), “The Battle for Syria: How World War III Will Begin,” Before It's News, Wednesday, August 22, 2012 23:50, pg. http://tinyurl.com/d8nnzug]

As the alliance of NATO, Israel and the conservative Gulf Cooperative Council (monarchies continue with their relentless drive to destroy the generally popular (with the Syrian people) government of Syria and using the coming all-out battle in Syria as a **backdoor to a regional war** with Iran and Lebanon, Gaza and Palestine, other Major Powers have grown increasingly concerned.  Russia, China and members of the Collective Security Treaty Organization (CSTO) and members of the Shanghai Cooperation Organization (SCO) have made clear their opposition to any further globalist/NATO/Zionist aggression in the North Africa-Middle East-Southwest Asia arena.  In fact both Russia and China have emphasized that their Vital National Interests are involved in Syria and Iran and have warned of the dangers of **nuclear war** and of a **Third World War** beginning if the ‘West’ continues with its aggressive operations. Nuclear armed Pakistan is drifting towards a war state with the United States as it continues to refuse to allow NATO resupply to the Afghan War through Pakistan territory and increasingly objects to the use of armed American drone aircraft against targets in Pakistan.

The horrific False Flag massacres that the NATO, Israeli and GCC trained/equipped/led foreign mercenaries have committed in Syria, against unarmed civilians including large numbers of women and children, are designed to fool segments of the western population into supporting yet another war.  They do not, however, fool the leaders of the various axis powers that are coalescing around the SCO and CSTO in opposition to further military aggression against Syria and Iran.  These nations are carefully watching the deployment of commando assets in and near Syria and Iran, the buildup of naval, air and land forces in the Middle East, and the developing False Narrative that the globalist/Zionist mainstream news media are putting out concerning the “necessity” of “doing something to save the Syrian civilians from the Assad government”.

The issue of armed intervention was a key matter at the SCO Summit June 6th and 7th in Beijing.  **Massive military intervention by Russia and China** is being planned for if the NATO/Israeli/GCC alliance crosses the line with a military intervention against the Syrian, Iranian, and Lebanese nations.  This military intervention has a most profound danger of not only involving weapons-of-mass-destruction but of beginning the Third World War!

Russia is actively preparing a significant number of its best ground forces for a rapid intervention in Syria.  These forces include the 15th Division, the 76th Airborne Division, and Black Sea Spetznaz forces ([link](http://www.wsws.org/articles/2012/jun2012/rusy-j12.shtml)).  Additionally, the Russian Air Force in the South Military District has been rearmed with the latest fighter aircraft and helicopters for combat with American/Israeli/NATO air forces.  Russian Army forces in Armenia have been strengthened and additional attack and assault helicopters added and the families of its officers have been evacuated back to Russia ([link](http://articles.businessinsider.com/2012-04-09/news/31311454_1_russian-defense-ministry-military-action-dmitry-rogozin)).  According to Russian reports, the Russians expect to drive through Georgia into friendly Armenia to link up with Iranian forces northwest of Tehran.

The Russians will **seek to establish their dominance in the Caucasus and Caspian states** and to finally secure military facilities on the Persian Gulf and Gulf of Oman.  They are apt to be supported by a large number of Chinese ground troops and fighter aircraft deploying through allied Pakistan into Iran.

The Russian and Chinese armed forces will come prepared for full NBC (**nuclear, biological and chemical**) warfare; tactical nuclear weapons are apt to be available to senior commanders but requiring Moscow’s and Beijing’s authorization prior to use.  Axis forces almost certainly will be supported by the deadly S-300 Air Defense System and the Russian forces may also use the even more advanced S-400 Air Defense System.  Top of the line Sukhoi fighter aircraft and AWACS type aircraft will be deployed.  Naval engagements may take place in the **Black Sea** and **Mediterranean Sea** between the Russian Navy and NATO navies, with additional naval clashes in the **Caspian Sea**.

Israeli and NATO forces may seek to do an ‘end run’ around any Russian/Chinese/CSO-CSTO counter-intervention by a quick coup de main utilizing rapid commando attacks on key Syrian and Iranian leadership targets and missile/air attacks on guided missile launch sites in Syria, Iran, Lebanon, and Gaza-Palestine.  This will not prevent Russian and Chinese forces from entering the war but may trigger a massive Iranian and Syrian use of **Advanced Biological weapons** against the NATO homelands in Europe and North America and against Israel and certain GCC states ([link](http://europebusines.blogspot.com/2012/02/war-on-iran-syria-what-they-are-not.html)).

The World at large has entered the most dangerous time in Human History as events continue to unfold in the Middle East and enter their climax phase.

**Our impact is 100 million times greater than nuclear war—you should vote neg even if 99% of humanity will perish.**

**Ćirković 8**—Professor of Physics @ University of Novi Sad in Serbia and Senior Research Associate at the Astronomical Observatory of Belgrade [Milan M. Ćirković Ph.D. (Fellow of the Institute for Ethics and Emerging Technologies), “How can we reduce the risk of human extinction?,” Institute for Ethics and Emerging Technologies, September 17, 2008, pg. http://ieet.org/index.php/IEET/print/2606]

The risks from anthropogenic hazards appear at present larger than those from natural ones. Although great progress has been made in reducing the number of nuclear weapons in the world, humanity is still threatened by the possibility of a global thermonuclear war and a resulting nuclear winter. We may face even **greater risks** from emerging technologies. Advances in synthetic biology might make it possible to engineer pathogens capable of extinction-level pandemics. The knowledge, equipment, and materials needed to engineer pathogens are **more accessible than** those needed to build **nuclear weapons**. And unlike other weapons, pathogens are **self-replicating**, allowing a small arsenal to become exponentially destructive. Pathogens have been implicated in the extinctions of many wild species. Although most pandemics “fade out” by reducing the density of susceptible populations, pathogens with wide host ranges in multiple species can reach even isolated individuals. The intentional or unintentional release of engineered pathogens with high transmissibility, latency, and lethality might be capable of causing human extinction. While such an event seems unlikely today, the likelihood may increase as biotechnologies continue to improve at a rate rivaling Moore’s Law.

Farther out in time are technologies that remain theoretical but might be developed this century. Molecular nanotechnology could allow the creation of self-replicating machines capable of destroying the ecosystem. And advances in neuroscience and computation might enable improvements in cognition that accelerate the invention of new weapons. A survey at the Oxford conference found that concerns about human extinction were dominated by fears that new technologies would be misused. **These emerging threats are especially challenging as they could become dangerous more quickly than past technologies, outpacing society’s ability to control them**. As H.G. Wells noted, “Human history becomes more and more a race between education and catastrophe.”

Such remote risks may seem academic in a world plagued by immediate problems, such as global poverty, HIV, and climate change. But as intimidating as these problems are, they do not threaten human existence. In discussing the risk of nuclear winter, Carl Sagan emphasized the astronomical toll of human extinction:

A nuclear war imperils all of our descendants, for as long as there will be humans. Even if the population remains static, with an average lifetime of the order of 100 years, over a typical time period for the biological evolution of a successful species (roughly ten million years), we are talking about some **500 trillion people yet to come**. By this criterion, **the stakes are one million times greater for extinction than for** the more modest **nuclear wars that kill “only” hundreds of millions** of people. There are many other possible measures of the potential loss—including culture and science, the evolutionary history of the planet, and the significance of the lives of all of our ancestors who contributed to the future of their descendants. Extinction is the undoing of the human enterprise.

There is a discontinuity between risks that threaten 10 percent or even 99 percent of humanity and those that threaten 100 percent. For disasters killing less than all humanity, there is a good chance that the species could recover. If we value future human generations, then reducing extinction risks should dominate our considerations. Fortunately, most measures to reduce these risks also improve global security against a range of lesser catastrophes, and thus deserve support regardless of how much one worries about extinction.

**And, nuclear winter doesn’t exist—Robock is cooking the numbers**

**Seitz 11**—Research fellow in physics @ Harvard University [Russell Seitz (Ph. D in applied physics @ Harvard University), “Nuclear winter was and is debatable,” Nature, 475, 37 (07 July 2011) pg. http://tinyurl.com/7jr3sxz]

Alan Robock's contention that there has been no real scientific debate about the 'nuclear winter' concept is itself debatable (Nature 473, 275–276; 2011). This potential climate disaster, popularized in Science in 1983, rested on the output of a one-dimensional model that was later shown to overestimate the smoke a nuclear holocaust might engender. More refined estimates, combined with **advanced three-dimensional models** (see http://go.nature.com.proxy.library.emory.edu/kss8te), have dramatically reduced the extent and severity of the projected cooling.

Despite this, Carl Sagan, who co-authored the 1983 Science paper, went so far as to posit “the extinction of Homo sapiens” (C. Sagan Foreign Affairs 63, 75–77; 1984). Some regarded this apocalyptic prediction as an exercise in **mythology**. George Rathjens of the Massachusetts Institute of Technology protested: “Nuclear winter is the worst example of the **misrepresentation of science** to the public in my memory,” (see http://go.nature.com.proxy.library.emory.edu/yujz84) and climatologist Kerry Emanuel observed that the subject had “become notorious for its **lack of scientific integrity**” (Nature 319, 259; 1986).

Robock's single-digit fall in temperature is at odds with the subzero (about −25 °C) continental cooling originally projected for a wide spectrum of nuclear wars. Whereas Sagan predicted darkness at noon from a US–Soviet nuclear conflict, Robock projects global sunlight that is several orders of magnitude brighter for a Pakistan–India conflict — literally the difference between night and day. Since 1983, the projected worst-case cooling has fallen from a Siberian deep freeze spanning 11,000 degree-days Celsius (a measure of the severity of winters) to numbers so unseasonably small as to call the very term 'nuclear winter' into question.

**Limited retaliation strategy prevents nuclear winter. Use of counterforce targeting prevents city fires and the release of soot.**

**Powell 89**—Professor of Poli Sci @ Harvard University [Robert Powell, “Nuclear Deterrence and the Strategy of Limited Retaliation,” The American Political Science Review, Vol. 83, No. 2 (Jun., 1989), pp. 503-519]

Conclusions - Although mutually assured destruction may be the technological state of affairs, there are still several conceptual approaches to nuclear deterrence. Recent formal work has focused on brinkmanship crises in which states exert coercive pressure by manipulating the risk of an unlimited nuclear exchange. I have attempted to extend the formal analysis of nuclear deterrence theory to the strategy of limited retaliation in which states exert coercive pressure by **inflicting limited amounts of damage** on an adversary in order to make the threat of future punishment more credible.

The strategy of limited retaliation has been modeled as a simple game of sequential bargaining. The game's equilibrium suggests that states prefer to have relatively **smaller, less-destructive limited options**. Moreover, each state also finds **counterforce options desirable** even though these options are incapable of limiting the total amount of damage an adversary can inflict on the state. When one-sided incomplete information is added to the model, the escalatory dynamic described by the game's unique sequential crisis equilibrium shows that as the crisis continues, the states become **less and less likely to escalate** further. The challenger also becomes less and less confident that it is facing an irresolute adversary. Moreover, a large reduction in the destructiveness of the defender's limited options may make the probability of a nuclear exchange smaller. A smaller reduction in the destructiveness of these options, however, may reduce crisis stability and make a nuclear exchange more likely. Finally, uncertainty and incomplete information play a crucial role in enhancing deterrence. Doubts about the defender's resolve may deter a state from making a challenge that it would have been certain to make had it been completely confident about the defender's resolve.

\*Robock concludes that 150 nuclear bombs need to be used to trigger nuclear winter

\*Counterforce = Targeting military installation. Avoiding cities

## \*\*\* 2NR

### Ext Katz—Hype

#### Their authors are academic opportunists—can’t trust their research.

Katz 11—Lecturer of Geography and Environmental Studies @ University of Haifa [Dr. David Katz (PhD in Natural Resource Policy & MA in Applied Economics @ University of Michigan), “Hydro-Political Hyperbole: Examining Incentives for Overemphasizing the Risks of Water Wars,” Global Environmental Politics, Volume 11, Number 1, February 2011, pp. 12-35]

Raise the Profile of the Author or Organization: Similar to the desire to draw attention to a cause, framing water issues in a security context can be a means of raising the profile of an organization or author. Again, this incentive is probably most dramatic for NGOs. Many observers have noted that NGOs and other“non-elites” can face serious challenges in attracting attention. Some have resorted to “exceptionally strange or violent acts as a substitute for their lack of status or resources” in order to attract the media’s eye.63 However, as some have noted, while “the benefit of outlandish behavior is media attention, the price is that you get stuck in this role or caricaturization.”64 In order for their organization and message to be taken more seriously, many environmental organizations have moved away from such tactics.65 Increasing the severity of their message is one tactic to attract attention while toning down behavior.

In the case of academics, connecting water to security also offers researchers a way to raise the profile of their work, given the salience of security issues in high-level policy circles and with the general public. Doing so increases the potential to gain access to policy-makers and the media. There is some evidence that water research stressing conflict potential may be more likely to be published. 66 Furthermore, combining environmental and security issues expands the number and types of journals in which academics can publish. Moreover, by gaining exposure to audiences outside their particular field of expertise, researchers also expand possibilities for further research collaboration. Pg. 22

### AT: Indo-Pak

#### Aff can’t solve—Indian dams makes war and collapse inevitable—aff doesn’t solve because desal doesn’t solve territory issues and no salt water to desalinate

Daly 12—John C.K. Daly is the chief analyst at the energy news site Oilprice.com. Dr. Daly received his Ph.D. in 1986 from the School of Slavonic and East European Studies, University of London [April 13, 2012, “Troubled Waters: Has The India-Pakistan Water Conflict Reached A Boiling Point?” http://www.economywatch.com/economy-business-and-finance-news/has-the-india-pakistan-water-conflict-reached-a-boiling-point.13-04.html]

In an editorial entitled “War With India Inevitable” published in Lahore's ‘The Nation’ on Sunday, the newspaper's Editor-in-Chief and Nazaria-i-Pakistan Trust Chairman, Majid Nizami, asked his fellow citizens to prepare for a war with India over water issues.

Nizami also told those attending the "Pakistan-India relations: Our rulers’ new wishes" session at Aiwan-e-Karkunan Tehrik-e-Pakistan, that, "Indian hostilities and conspiracies against the country will never end until she is taught a lesson."

While The Nation – a conservative daily that is part of the Nawa-i-Waqt publishing group – may have a circulation of just 20,000 readers, its close ties to Pakistan's highest military circles mean that Nizami's comments should hardly be rejected out of hand.

Tellingly, Nizami's audience at the session also included some high ranking Pakistani officials, including Nazaria-i-Pakistan Vice Chairman Dr Rafique Ahmed; Pakistan Movement Workers-Trust Chairman, retired Colonel Jamshed Ahmed Tareen; former Foreign Secretary Shamshad Ahmed Khan; Jamiat Ulema-e-Pakistan Secretary General Qari Zawar Bahadur; retired Air Marshall Khurished Anwar Mirza; retired Brigadier Hamid Saeed Akhtar and Jamaat-e-Islami Lahore Chief Ameer-ul-Azeem, among others.

At the heart of the issue are Pakistan's concerns over India's ongoing construction of two hydroelectric dams on the upper reaches of the Indus River. The Indus, which begins in Indian-controlled Kashmir and flows through both India and Pakistan, is Pakistan's primary freshwater source, on which 90 percent of its agriculture depends.

The 45-megawatt, 190-feet tall Nimoo-Bazgo concrete dam and the 44-megawatt Chutak hydroelectric power project, Islamabad believes, will reduce the Indus River's flow towards Pakistan, and are capable of storing up to 4.23 billion cubic feet of water, which will violate the terms of the bilateral 1960 Indus Water Treaty.

“Already the Indus is experiencing water flows that are down 30 percent from its normal levels. According to a number of Pakistani agriculture and water experts, the nation is heading towards a massive water shortage in the next couple of years due to insufficient water management practices and storage capacity, which will be exacerbated by the twin Indian hydroelectric projects.”

So, if push comes to shove, who's got Pakistan's back? China.

During the Boao Forum for Asia held in China's southern Hainan Island on 1 April, Pakistan and China agreed to support each other "in all circumstances" and vowed to uphold their sovereignty and territorial integrity at all costs.

Pakistani Prime Minister Syed Yousuf Raza Gilani told Chinese Executive Vice Premier Li Keqiang: "China's friend is our friend, and China's enemy is ours," adding that Pakistan considers China's security as its own security and supports China's position on Taiwan, Tibet and Xinjiang.

Li replied that China would support Pakistan's sovereignty and territorial integrity in every situation, telling Gilani: "No matter what changes take place at international level, we will uphold Pakistan's sovereignty and territorial integrity."

It might be noted here that in October 1962, coinciding with the Cuban missile crisis, India and China fought a brief but bitter war along their disputed Himalayan border. Fifty years later, China and India have yet to resolve their border issues over Kashmir; and China continues to claim most of India's Arunachal Pradesh territory to the base of the Himalayas in the absence of any definitive treaty delineating the border.

Kashmir today also remains the site of the world's largest and most militarized territorial dispute with portions under the de facto administration of China (Aksai Chin), India (Jammu and Kashmir), and Pakistan (Azad Kashmir and Northern Areas).

No guesses therefore as to whom Beijing might back should Pakistani-Indian tensions continue to rise.

Accordingly, the only way to keep the peace may be, as to paraphrase Ronald Reagan in Berlin: "Prime Minister Singh, tear down those dams!" Just don't bet on it.

### 2NC AT: Land Use/Increase Warming

#### Enhancing soil carbon would boost productivity—this would actually reduce the need for more land.

Claire Schaffnit-Chatterjee, 9/19/2011. Deutsche Bank Research. “Mitigating climate change through agriculture,” [www.dbresearch.com/PROD/DBR\_INTERNET\_EN-PROD/PROD0000000000278568/Mitigating+climate+change+through+agriculture%3A+An+untapped+potential.pdf](http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD0000000000278568/Mitigating+climate+change+through+agriculture%3A+An+untapped+potential.pdf).

It is important to know whether achieving climate benefits in one place simply displaces land use pressures to another place, which may result in no net reduction in emissions. This concern applies to interventions such as preventing land-clearing in one place or implementing cropping systems which result in lower supply or higher prices: they may lead to non-climate friendly practices taking place somewhere else. There are ways to counter this problem, by assessing the climate impact on a larger scale (even at country level), or limiting the market access to producers who are certified ―climate-friendly‖. However, most types of climate-friendly farming involving carbon sequestration or emissions reduction do not lead to this issue of ―displacing the problem‖ or leakage since they do not significantly increase production costs. As discussed above, enhancing soil carbon in agricultural fields will actually normally increase crop yields and farm income, often resulting in reduced need for land, thus preventing land-clearing.