# 1AC

## 1AC – USC Semis

### 1AC – Heg Advantage

#### CONTENTION 1: HEG

**Scenario 1---Cyber-terrorism**

**Cyber-attack is coming ---actors are probing grid weaknesses**

**Reed 12** John, Reports on the frontiers of cyber war and the latest in military technology for Killer Apps at Foreign Policy, "U.S. energy companies victims of potentially destructive cyber intrusions", 10/11, killerapps.foreignpolicy.com/posts/2012/10/11/us\_energy\_companies\_victims\_of\_potentially\_destructive\_cyber\_attacks

Foreign actors are probing the networks of key American companies in an attempt to gain control of industrial facilities and transportation systems, Defense Secretary Leon Panetta revealed tonight.¶ "We know that foreign **cyber actors are probing America's critical infrastructure networks**," said Panetta, disclosing previously classified information during a speech in New York laying out the Pentagon's role in protecting the U.S. from cyber attacks. "They are targeting the computer control systems that operate chemical, **electricity** and water plants, and those that guide transportation thorough the country."¶ He went on to say that the U.S. government knows of "specific instances where intruders have gained access" to these systems -- frequently known as Supervisory Control and Data Acquisition (or SCADA) systems -- and that "they are seeking to create advanced tools to attack these systems and cause panic, destruction and even the loss of life," according to an advance copy of his prepared remarks.¶ The secretary said that **a coordinated attack on enough critical infrastructure could be a "cyber Pearl Harbor" that would "cause physical destruction and loss of life, paralyze and shock the nation, and create a profound new sense of vulnerability.**"¶ While there have been reports of criminals using 'spear phishing' email attacks aimed at stealing information about American utilties, Panetta's remarks seemed to suggest more sophisticated, nation-state backed attempts to actually gain control of and damage power-generating equipment. ¶ Panetta's comments regarding the penetration of American utilities echo those of a private sector cyber security expert Killer Apps spoke with last week **who said that the networks of American electric companies were penetrated, perhaps in preparation for a Stuxnet-style attack**.¶ Stuxnet is the famous cyber weapon that infected Iran's uranium-enrichment centrifuges in 2009 and 2010. Stuxnet is believed to have caused some of the machines to spin erratically, thereby destroying them.¶ "**There is hard evidence** that there has been penetration of our power companies, and given Stuxnet, that is a staging step before destruction" of electricity-generating equipment, the expert told Killer Apps. Because uranium centrifuges and power turbines are both spinning machines, "**the attack is identical -- the one to take out the centrifuges and the one to take out our power systems is the same attack**."¶ "If a centrifuge running at the wrong speed can blow apart" so can a power generator, said the expert. "If you do, in fact, spin them at the wrong speeds, you can blow up any rotating device."¶ Cyber security expert Eugene Kaspersky said two weeks ago that one of his greatest fears is someone reverse-engineering a sophisticated cyber weapon like Stuxnet **-- a relatively easy task** -- and he noted that Stuxnet itself passed through power plants on its way to Iran. "Stuxnet infected thousands of computer systems all around the globe, I know there were power plants infected by Stuxnet very far away from Iran," Kaspersky said.

**Grid attacks take out C and C---causes retaliation and nuclear war**

**Tilford 12** Robert, Graduate US Army Airborne School, Ft. Benning, Georgia, “Cyber attackers could shut down the electric grid for the entire east coast” 2012, <http://www.examiner.com/article/cyber-attackers-could-easily-shut-down-the-electric-grid-for-the-entire-east-coa>

To make matters worse a cyber attack that can take out a civilian power grid, for example could also cripple the U.S. military.¶ The senator notes that is that the same power grids that supply cities and towns, stores and gas stations, cell towers and heart monitors also power “every military base in our country.”¶ “Although bases would be prepared to weather a short power outage with backup diesel generators, within hours, not days, fuel supplies would run out”, he said.¶ Which means military **command and control centers could go dark**.¶ Radar systems that detect air threats to our country **would shut Down completely**.¶ “Communication between commanders and their troops would also go silent. And many weapons systems would be left without either fuel or electric power”, said Senator Grassley.¶ “So in a few short hours or days, the mightiest military in the world would be left scrambling to maintain base functions”, he said.¶ We contacted the Pentagon and officials confirmed the threat of a cyber attack is something very real.¶ Top national security officials—including the Chairman of the Joint Chiefs, the Director of the National Security Agency, the Secretary of Defense, and the CIA Director— have said, “preventing a cyber attack and improving the nation’s electric grids is among the most urgent priorities of our country” (source: Congressional Record).¶ So how serious is the Pentagon taking all this?¶ Enough to start, or end a war over it, for sure (see video: Pentagon declares war on cyber attacks http://www.youtube.com/watch?v=\_kVQrp\_D0kY&feature=relmfu ).¶ A cyber attack today against the US could very well be seen as an “Act of War” and could be met with a “full scale” US military response.¶ That could include the use **of “nuclear weapons**”, if authorized by the President.

**Plan solves grid collapse---SMRs make bases resilient and deters attack**

**Andres and Breetz 11** Richard B, Professor of National Security Strategy at the National War College and a Senior Fellow and Energy and Environmental Security and Policy Chair in the Center for Strategic Research, Institute for National Strategic Studies, at the National Defense University and Hanna L, doctoral candidate in the Department of Political Science at The Massachusetts Institute of Technology, February, "Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications", www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf

Small Reactors and Energy Security¶ The DOD interest in small reactors derives largely from problems with base and logistics vulnerability. Over the last few years, the Services have begun to reexamine virtually every aspect of how they generate and use energy with an eye toward cutting costs, decreasing carbon emissions, and reducing energy-related vulnerabilities. These actions have resulted in programs that have significantly reduced DOD energy consumption and greenhouse gas emissions at domestic bases. Despite strong efforts, however, two critical security issues have thus far **proven resistant to existing solutions**: bases’ vulnerability to civilian power outages, and the need to transport large quantities of fuel via convoys through hostile territory to forward locations. Each of these is explored below.¶ Grid Vulnerability. DOD is unable to provide its bases with electricity when the civilian electrical grid is offline for an extended period of time. **Currently, domestic military installations receive 99 percent of their electricity from the civilian power grid.** As explained in a recent study from the Defense Science Board:¶ DOD’s key problem with electricity is that critical missions, such as national strategic awareness and national command authorities, are almost entirely dependent on the national transmission grid . . . [**which] is fragile, vulnerable, near its capacity limit, and outside of DOD control**. In most cases, neither the grid nor on-base backup power provides sufficient reliability to ensure continuity of critical national priority functions and oversight of strategic missions in the face of a long term (several months) outage.7¶ The grid’s fragility was demonstrated during the 2003 Northeast blackout in which 50 million people in the United States and Canada lost power, some for up to a week, when one Ohio utility failed to properly trim trees. The blackout created cascading disruptions in sewage systems, gas station pumping, cellular communications, border check systems, and so forth, and demonstrated the interdependence of modern infrastructural systems.8¶ More recently, awareness has been growing that the grid is also vulnerable to purposive attacks. A report sponsored by the Department of Homeland Security suggests that a coordinated cyberattack on the grid could result in a third of the country losing power for a period of weeks or months.9 Cyberattacks on critical infrastructure are not well understood. It is not clear, for instance, whether existing terrorist groups might be able to develop the capability to conduct this type of attack. It is likely, however, that some nation-states either have or are working on developing the ability to take down the U.S. grid. In the event of a war with one of these states, it is possible, if not likely, that parts of the civilian grid would cease to function, taking with them military bases located in affected regions.¶ **Government and private organizations are currently working to secure the grid against attacks; however, it is not clear that they will be successful**. Most military bases currently have backup power that allows them to function for a period of hours or, at most, a few days on their own. **If power were not restored after this amount of time, the results could be disastrous**. First, military assets taken offline by the crisis would not be available to help with disaster relief. Second, during an extended blackout, **global military operations could be seriously compromised**; this disruption would be particularly serious if the blackout was induced during major combat operations. During the Cold War, this type of event was far less likely because the United States and Soviet Union shared the common understanding that blinding an opponent with **a grid blackout could escalate to nuclear war**. America’s current opponents, however, may not share this fear or be deterred by this possibility.¶ In 2008, the Defense Science Board stressed that DOD should mitigate the electrical grid’s vulnerabilities by turning military installations into “islands” of energy self-sufficiency.10 The department has made efforts to do so by promoting efficiency programs that lower power consumption on bases and by constructing renewable power generation facilities on selected bases. Unfortunately, these programs will not come close to reaching the goal of islanding the vast majority of bases. **Even with massive investment in efficiency and renewables, most bases would not be able to function for more than a few days after the civilian grid went offline**.¶ **Unlike other alternative sources of energy, small reactors have the potential to solve DOD’s vulnerability to grid outages**. Most bases have relatively light power demands when compared to civilian towns or cities. Small reactors could easily support bases’ power demands separate from the civilian grid during crises. In some cases, the reactors could be designed to produce enough power not only to supply the base, but also to provide critical services in surrounding towns during long-term outages.¶ Strategically, islanding bases with small reactors has another benefit. One of the main reasons an enemy might be willing to risk reprisals by taking down the U.S. grid during a period of military hostilities would be to affect ongoing military operations. Without the lifeline of intelligence, communication, and logistics provided by U.S. domestic bases, American military operations would be compromised in almost any conceivable contingency**. Making bases more resilient to civilian power outages would reduce the incentive for an opponent to attack the grid**. An opponent might still attempt to take down the grid for the sake of disrupting civilian systems, but the powerful incentive to do so in order to win an ongoing battle or war would be greatly reduced.

**Grid failure wrecks US critical mission operations**

**Stockton 11** Paul, assistant secretary of defense for Homeland Defense and Americas’ Security Affairs, “Ten Years After 9/11: Challenges for the Decade to Come”, <http://www.hsaj.org/?fullarticle=7.2.11>

The cyber threat to the DIB is only part of a much larger challenge to DoD. Potential adversaries are seeking asymmetric means to cripple our force projection, warfighting, and sustainment capabilities, by targeting the critical civilian and defense supporting assets (within the United States and abroad) on which our forces depend. This challenge is not limited to man-made threats; DoD must also execute its mission-essential functions in the face of disruptions caused by naturally occurring hazards.20 Threats and hazards to DoD mission execution include incidents such as earthquakes, naturally occurring pandemics, solar weather events, and industrial accidents, as well as kinetic or virtual attacks by state or non-state actors. Threats can also emanate from insiders with ties to foreign counterintelligence organizations, homegrown terrorists, or individuals with a malicious agenda. From a DoD perspective, this global convergence of unprecedented threats and hazards, and vulnerabilities and consequences, is a particularly problematic reality of the post-Cold War world. Successfully deploying and sustaining our military forces are increasingly a function of interdependent supply chains and privately owned infrastructure within the United States and abroad, including transportation networks, cyber systems, commercial corridors, communications pathways, and energy grids. This infrastructure largely falls outside DoD direct control. Adversary actions to destroy, disrupt, or manipulate this highly vulnerable homeland- and foreign-based infrastructure may be relatively easy to achieve and extremely tough to counter. Attacking such “soft,” diffuse infrastructure systems could significantly affect our military forces globally – potentially blinding them, neutering their command and control, degrading their mobility, and isolating them from their principal sources of logistics support. The Defense Critical Infrastructure Program (DCIP) under Mission Assurance seeks to improve execution of DoD assigned missions to make them more resilient. This is accomplished through the assessment of the supporting commercial infrastructure relied upon by key nodes during execution. By building resilience into the system and ensuring this support is well maintained, DoD aims to ensure it can "take a punch as well as deliver one."21 It also provides the department the means to prioritize investments across all DoD components and assigned missions to the most critical issues faced by the department through the use of risk decision packages (RDP).22 The commercial power supply on which DoD depends exemplifies both the novel challenges we face and the great progress we are making with other federal agencies and the private sector. Today’s commercial electric power grid has a great deal of resilience against the sort of disruptive events that have traditionally been factored into the grid’s design. Yet, the grid will increasingly confront threats beyond that traditional design basis. This complex risk environment includes: disruptive or deliberate attacks, either physical or cyber in nature; severe natural hazards such as geomagnetic storms and natural disasters with cascading regional and national impacts (as in NLE 11); long supply chain lead times for key replacement electric power equipment; transition to automated control systems and other smart grid technologies without robust security; and more frequent interruptions in fuel supplies to electricity-generating plants. These risks are magnified by globalization, urbanization, and the highly interconnected nature of people, economies, information, and infrastructure systems. The department is highly dependent on commercial power grids and energy sources. As the largest consumer of energy in the United States, DoD is dependent on commercial electricity sources outside its ownership and control for secure, uninterrupted power to support critical missions. In fact, approximately 99 percent of the electricity consumed by DoD facilities originates offsite, while approximately 85 percent of critical electricity infrastructure itself is commercially owned. This situation only underscores the importance of our partnership with DHS and its work to protect the nation’s critical infrastructure – a mission that serves not only the national defense but also the larger national purpose of sustaining our economic health and competitiveness. DoD has traditionally assumed that the commercial grid will be subject only to infrequent, weather-related, and short-term disruptions, and that available backup power is sufficient to meet critical mission needs. As noted in the February 2008 Report of the Defense Science Board Task Force on DoD Energy Strategy, “In most cases, neither the grid nor on-base backup power provides sufficient reliability to ensure continuity of critical national priority functions and oversight of strategic missions in the face of a long term (several months) outage.”23 Similarly, a 2009 GAO Report on Actions Needed to Improve the Identification and Management of Electrical Power Risks and Vulnerabilities to DoD Critical Assets stated that DoD mission-critical assets rely primarily on commercial electric power and are vulnerable to disruptions in electric power supplies.24 Moreover, these vulnerabilities may cascade into other critical infrastructure that uses the grid – communications, water, transportation, and pipelines – that, in turn, is needed for the normal operation of the grid, as well as its quick recovery in emergency situations. To remedy this situation, the Defense Science Board (DSB) Task Force recommended that DoD take a broad-based approach, including a focused analysis of critical functions and supporting assets, a more realistic assessment of electricity outage cause and duration, and an integrated approach to risk management that includes greater efficiency, renewable resources, distributed generation, and increased reliability. DoD Mission Assurance is designed to carry forward the DSB recommendations. Yet, for a variety of reasons – technical, financial, regulatory, and legal – DoD has limited ability to manage electrical power demand and supply on its installations. As noted above, DHS is the lead agency for critical infrastructure protection by law and pursuant to Homeland Security Presidential Directive 7. The Department of Energy (DOE) is the lead agency on energy matters. And within DoD, energy and energy security roles and responsibilities are distributed and shared, with different entities managing security against physical, nuclear, and cyber threats; cost and regulatory compliance; and the response to natural disasters. And of course, production and delivery of electric power to most DoD installations are controlled by commercial entities that are regulated by state and local utility commissions. The resulting paradox: DoD is dependent on a commercial power system over which it does not – and never will – exercise control.

**Loss of mission effectiveness causes nuclear war in every hotspot**

**Kagan and O’Hanlon 7** Frederick, resident scholar at AEI and Michael, senior fellow in foreign policy at Brookings, “The Case for Larger Ground Forces”, April 2007, http://www.aei.org/files/2007/04/24/20070424\_Kagan20070424.pdf

We live at a time when wars not only rage in nearly every region but threaten to erupt in many places where the current relative calm is tenuous. To view this as a strategic military challenge for the United States is not to espouse a specific theory of America’s role in the world or a certain political philosophy. Such an assessment flows directly from the basic bipartisan view of American foreign policy makers since World War II that overseas threats must be countered before they can directly threaten this country’s shores, that the basic stability of the international system is essential to American peace and prosperity, and that no country besides the United States is in a position to lead the way in countering major challenges to the global order. Let us highlight the threats and their consequences with a few concrete examples, emphasizing those that involve key strategic regions of the world such as the Persian Gulf and East Asia, or key potential threats to American security, such as the spread of nuclear weapons and the strengthening of the global Al Qaeda/jihadist movement. The Iranian government has rejected a series of international demands to halt its efforts at enriching uranium and submit to international inspections. What will happen if the US—or Israeli—government becomes convinced that Tehran is on the verge of fielding a nuclear weapon? North Korea, of course, has already done so, and the ripple effects are beginning to spread. Japan’s recent election to supreme power of a leader who has promised to rewrite that country’s constitution to support increased armed forces—and, possibly, even nuclear weapons— may well alter the delicate balance of fear in Northeast Asia fundamentally and rapidly. Also, in the background, at least for now, Sino Taiwanese tensions continue to flare, as do tensions between India and Pakistan, Pakistan and Afghanistan, Venezuela and the United States, and so on. Meanwhile, the world’s nonintervention in Darfur troubles consciences from Europe to America’s Bible Belt to its bastions of liberalism, yet with no serious international forces on offer, the bloodletting will probably, tragically, continue unabated. And as bad as things are in Iraq today, they could get worse. What would happen if the key Shiite figure, Ali al Sistani, were to die? If another major attack on the scale of the Golden Mosque bombing hit either side (or, perhaps, both sides at the same time)? Such deterioration might convince many Americans that the war there truly was lost—but the costs of reaching such a conclusion would be enormous. Afghanistan is somewhat more stable for the moment, although a major Taliban offensive appears to be in the offing. Sound US grand strategy must proceed from the recognition that, over the next few years and decades, the world is going to be a very unsettled and quite dangerous place, with Al Qaeda and its associated groups as a subset of a much larger set of worries. The only serious response to this international environment is to develop armed forces capable of protecting America’s vital interests throughout this dangerous time**. Doing so requires a military capable of a wide range of missions**—including not only deterrence of great power conflict in dealing with potential hotspots in Korea, the Taiwan Strait, and the Persian Gulf but also associated with a variety of Special Forces activities and stabilization operations. For today’s US military, which already excels at high technology and is increasingly focused on re-learning the lost art of counterinsurgency, this is first and foremost a question of finding the resources to field a large-enough standing Army and Marine Corps to handle personnel intensive missions such as the ones now under way in Iraq and Afghanistan. Let us hope there will be no such large-scale missions for a while. But preparing for the possibility, while doing whatever we can at this late hour to relieve the pressure on our soldiers and Marines in ongoing operations, is prudent. At worst, the only potential downside to a major program to strengthen the military is the possibility of spending a bit too much money. **Recent history shows no link between having a larger military and its overuse**; indeed, Ronald Reagan’s time in office was characterized by higher defense budgets and yet much less use of the military, an outcome for which we can hope in the coming years, but hardly guarantee. While the authors disagree between ourselves about proper increases in the size and cost of the military (with O’Hanlon preferring to hold defense to roughly 4 percent of GDP and seeing ground forces increase by a total of perhaps 100,000, and Kagan willing to devote at least 5 percent of GDP to defense as in the Reagan years and increase the Army by at least 250,000), we agree on the need to start expanding ground force capabilities by at least 25,000 a year immediately. Such a measure is not only prudent, it is also badly overdue.

**Hegemony prevents extinction**

**Barnett 11** (Thomas P.M., Former Senior Strategic Researcher and Professor in the Warfare Analysis & Research Department, Center for Naval Warfare Studies, U.S. Naval War College American military geostrategist and Chief Analyst at Wikistrat., worked as the Assistant for Strategic Futures in the Office of Force Transformation in the Department of Defense, “The New Rules: Leadership Fatigue Puts U.S., and Globalization, at Crossroads,” March 7 <http://www.worldpoliticsreview.com/articles/8099/the-new-rules-leadership-fatigue-puts-u-s-and-globalization-at-crossroads>)

Events in Libya are a further reminder for Americans that we **stand at a crossroads in our continuing evolution as the world's sole full-service superpower**. Unfortunately, we are increasingly seeking change without cost, and shirking from risk because we are tired of the responsibility. We don't know who we are anymore, and our president is a big part of that problem. Instead of leading us, he explains to us. Barack Obama would have us believe that he is practicing strategic patience. But many experts and ordinary citizens alike have concluded that he is actually beset by strategic incoherence -- in effect, a man overmatched by the job. It is worth first examining the larger picture: We live in a time of arguably **the greatest structural change in the global order yet endured**, with this historical moment's most amazing feature being its relative and absolute **lack of mass violence**. That is something to consider when Americans contemplate military intervention in Libya, because if we do take the step to prevent larger-scale killing by engaging in some killing of our own, we will not be adding to some fantastically imagined global death count stemming from the ongoing "megalomania" and "evil" of American "empire." We'll be engaging in the same sort of system-administering activity that has marked our stunningly successful stewardship of global order since World War II. Let me be more blunt: As the **guardian of globalization**, the U.S. military has been the **greatest force for peace the world has ever known**. Had America been removed from the global dynamics that governed the 20th century, the **mass murder never would have ended**. Indeed, it's entirely conceivable **there would now be no identifiable human civilization left, once nuclear weapons entered the killing equation.**  But the world did not keep sliding down that **path of perpetual war**. Instead, America stepped up and changed everything by **ushering in our now-perpetual great-power peace**. We introduced the **international liberal trade order known as globalization** and played loyal Leviathan over its spread. What resulted was the collapse of empires, **an explosion of democracy**, the **persistent spread of human rights**, the liberation of women, **the doubling of life expectancy**, a roughly **10-fold increase in adjusted global GDP** and a **profound and persistent reduction in** battle deaths from **state-based conflicts.** That is what American "hubris" actually delivered. Please remember that the next time some TV pundit sells you the image of "unbridled" American military power as the cause of global disorder instead of its cure. With self-deprecation bordering on self-loathing, we now imagine a post-American world that is anything but. Just watch who scatters and who steps up as the Facebook revolutions erupt across the Arab world. While we might imagine ourselves the status quo power, we remain the world's most vigorously revisionist force. As for the sheer "evil" that is our military-industrial complex, again, let's examine what the world looked like before that establishment reared its ugly head. The last great period of global structural change was the first half of the 20th century, a period that saw a death toll of about 100 million across two world wars. That comes to an average of 2 million deaths a year in a world of approximately 2 billion souls. Today, with far more comprehensive worldwide reporting, researchers report an average of less than 100,000 battle deaths annually in a world fast approaching 7 billion people. Though admittedly crude, these calculations suggest a 90 percent absolute drop and a 99 percent relative drop in deaths due to war. We are clearly headed for a world order characterized by multipolarity, something the American-birthed system was designed to both encourage and accommodate. But given how things turned out the last time we collectively faced such a fluid structure, we would do well to keep U.S. power, in all of its forms, deeply embedded in the geometry to come. To continue the historical survey, after salvaging Western Europe from its half-century of civil war, the U.S. emerged as the progenitor of a new, far more just form of globalization -- one based on actual free trade rather than colonialism. America then successfully replicated globalization further in East Asia over the second half of the 20th century, setting the stage for the Pacific Century now unfolding.

**Scenario 2---Drones**

**Grid shutdown makes drones ineffective**

**Robyn 10** Dr. Dorothy, Deputy Under Secretary of Defense for Installations and Environment, 1/27/10, Statement before the Senate Homeland Security and Governmental Affairs Committee, Subcommittee on Federal Financial Management, Government Information, Federal Services and International Security, http://www.acq.osd.mil/ie/download/robyn\_testimony\_27jan10.pdf

A final challenge is grid vulnerability. DoD’s reliance on a fragile commercial grid to deliver electricity to its 500-plus installations places the continuity of critical missions at risk. Most installations lack the ability to manage their demand for and supply of electrical power and are thus vulnerable to intermittent and/or prolonged power disruption due to natural disasters, cyberattacks and sheer overload of the grid. **Because** of **U.S. combat forces’** increasing **reliance on “reachback” support from installations in the U**nited **S**tates, power failures at those installations could adversely affect our power projection and homeland defense mission capability. For example, we operate Predator drones in Afghanistan from a facility in Nevada and analyze battlefield intelligence at data centers here at home. This means that **an energy threat to bases at home can be a threat to operations abroad**.

**Drones defeat terrorists and prevent Pakistan collapse**

**Nadim 12** Hussain, visiting scholar at the Woodrow Wilson Center, "How Drones Changed the Game in Pakistan", August 8, nationalinterest.org/how-drones-changed-the-game-pakistan-7290

Regardless of what the news agencies in Pakistan claim about the negative effects of drone strikes**, the weapon is proving to be a game changer for the U.S. war on terrorism**. And surprisingly, the Pakistani Army quietly admits to this fact. Just the way Stinger missiles shifted the balance of power in favor of the United States in the 1980s, drones are producing the same results.¶ The critics of unmanned strikes, who claim that drones are contributing to growing radicalization in Pakistan, haven’t looked around enough—or they **would realize that much of the radicalization already was established** by the Taliban in the 1990s. The real tragedy is that it is acceptable for the Taliban to radicalize and kill, but it is considered a breach of sovereignty for the United States, in pursuit of those radicalizing Pakistan’s people, to do the same.¶ **There is so much protest over the drones because the media reports about them are biased**. Although people on ground in war zones contend that the drone strikes have very few civilian casualties and, with time, have become extremely precise, the media presents quite a different story to boost its ratings.¶ Many in Pakistan, especially in the army, understand the positive impact of this weapon. Drones are coming in handy for two reasons: **their precision and psychological effect**. Many analysts of this subject have been concerned only with the military aspect, such as whether or not drones are precise enough and the casualties they incur. But part of what works in favor of the United States is the psychological impact—the fear that drones have instilled in the militants. The fact that the United States might strike day or night, inside the militant compound or outside while traveling in the convoys, **works to deter militants and restrict their operations**. This tilts the balance of power in favor of the United States.¶ Most of the people in the Pakistani Army whom I interviewed on the subject were positive about the drone strikes and their direct correlation with a decrease in terrorist attacks in Pakistan. The majority focused on the psychological impact of the drones and how they **have put militants on the run**, forcing them to sleep under trees at night, though it must be said that army officials showed some concern about cases in which the same psychological impact is experienced by civilians.¶ Locals I talked to are frustrated over the fear that they might get hit by a drone if the militants are hiding in their neighborhood. But this frustration may have a positive impact as it motivates civilians to flush out and close doors to militants who seek refuge in their areas.¶ Surprisingly, there isn’t as much anti-Americanism as one would suspect in areas where the United States is conducting drone strikes**, largely because the locals are fed up with the influx of militants** in their areas **and have suffered because of terrorism**. However, urban centers, which have suffered the least from terrorism, are far more radicalized and anti-American. Hence, we see large anti-drone rallies in the cities of Punjab, where people have little first-hand experience with drones. The anti-American lot in these places will start a rally for any reason at all as long as they get to burn a few American flags.

**Terrorism causes extinction**

**Hellman 8** [Martin E. Hellman, emeritus prof of engineering @ Stanford, “Risk Analysis of Nuclear Deterrence” SPRING 2008 THE BENT OF TAU BETA PI, http://www.nuclearrisk.org/paper.pdf]

The threat of nuclear terrorism looms much larger in the public’s mind than the threat of a full-scale nuclear war, yet this article focuses primarily on the latter. An explanation is therefore in order before proceeding. A terrorist attack involving a nuclear weapon would be a catastrophe of immense proportions: “A 10-kiloton bomb detonated at Grand Central Station on a typical work day would likely kill some half a million people, and inflict over a trillion dollars in direct economic damage. America and its way of life would be changed forever.” [Bunn 2003, pages viii-ix]. The likelihood of such an attack is also significant. Former Secretary of Defense William Perry has estimated the chance of a nuclear terrorist incident within the next decade to be roughly 50 percent [Bunn 2007, page 15]. David Albright, a former weapons inspector in Iraq, estimates those odds at less than one percent, but notes, “We would never accept a situation where the chance of a major nuclear accident like Chernobyl would be anywhere near 1% .... A nuclear terrorism attack is a low-probability event, but we can’t live in a world where it’s anything but extremely low-probability.” [Hegland 2005]. In a survey of 85 national security experts, Senator Richard Lugar found a median estimate of 20 percent for the “probability of an attack involving a nuclear explosion occurring somewhere in the world in the next 10 years,” with 79 percent of the respondents believing “it more likely to be carried out by terrorists” than by a government [Lugar 2005, pp. 14-15]. I support increased efforts to reduce the threat of nuclear terrorism, but that is not inconsistent with the approach of this article. Because terrorism is one of the potential trigger mechanisms for a full-scale nuclear war, the risk analyses proposed herein will include estimating the risk of nuclear terrorism as one component of the overall risk. If that risk, the overall risk, or both are found to be unacceptable, then the proposed remedies would be directed to reduce which- ever risk(s) warrant attention. Similar remarks apply to a number of other threats (e.g., nuclear war between the U.S. and China over Taiwan). his article would be incomplete if it only dealt with the threat of nuclear terrorism and neglected the threat of full- scale nuclear war. If both risks are unacceptable, an effort to reduce only the terrorist component would leave humanity in great peril. In fact, society’s almost total neglect of the threat of full-scale nuclear war makes studying that risk all the more important. The cosT of World War iii The danger associated with nuclear deterrence depends on both the cost of a failure and the failure rate.3 This section explores the cost of a failure of nuclear deterrence, and the next section is concerned with the failure rate. While other definitions are possible, this article defines a failure of deterrence to mean a full-scale exchange of all nuclear weapons available to the U.S. and Russia, an event that will be termed World War III. Approximately 20 million people died as a result of the first World War. World War II’s fatalities were double or triple that number—chaos prevented a more precise deter- mination. In both cases humanity recovered, and the world today bears few scars that attest to the horror of those two wars. Many people therefore implicitly believe that a third World War would be horrible but survivable, an extrapola- tion of the effects of the first two global wars. In that view, World War III, while horrible, is something that humanity may just have to face and from which it will then have to recover. In contrast, some of those most qualified to assess the situation hold a very different view. In a 1961 speech to a joint session of the Philippine Con- gress, General Douglas MacArthur, stated, “Global war has become a Frankenstein to destroy both sides. … If you lose, you are annihilated. If you win, you stand only to lose. No longer does it possess even the chance of the winner of a duel. It contains now only the germs of double suicide.” Former Secretary of Defense Robert McNamara ex- pressed a similar view: “If deterrence fails and conflict develops, the present U.S. and NATO strategy carries with it a high risk that Western civilization will be destroyed” [McNamara 1986, page 6]. More recently, George Shultz, William Perry, Henry Kissinger, and Sam Nunn4 echoed those concerns when they quoted President Reagan’s belief that nuclear weapons were “totally irrational, totally inhu- mane, good for nothing but killing, possibly destructive of life on earth and civilization.” [Shultz 2007] Official studies, while couched in less emotional terms, still convey the horrendous toll that World War III would exact: “The resulting deaths would be far beyond any precedent. Executive branch calculations show a range of U.S. deaths from 35 to 77 percent (i.e., 79-160 million dead) … a change in targeting could kill somewhere between 20 million and 30 million additional people on each side .... These calculations reflect only deaths during the first 30 days. Additional millions would be injured, and many would eventually die from lack of adequate medical care … millions of people might starve or freeze during the follow- ing winter, but it is not possible to estimate how many. … further millions … might eventually die of latent radiation effects.” [OTA 1979, page 8] This OTA report also noted the possibility of serious ecological damage [OTA 1979, page 9], a concern that as- sumed a new potentiality when the TTAPS report [TTAPS 1983] proposed that the ash and dust from so many nearly simultaneous nuclear explosions and their resultant fire- storms could usher in a nuclear winter that might erase homo sapiens from the face of the earth, much as many scientists now believe the K-T Extinction that wiped out the dinosaurs resulted from an impact winter caused by ash and dust from a large asteroid or comet striking Earth. The TTAPS report produced a heated debate, and there is still no scientific consensus on whether a nuclear winter would follow a full-scale nuclear war. Recent work [Robock 2007, Toon 2007] suggests that even a limited nuclear exchange or one between newer nuclear-weapon states, such as India and Pakistan, could have devastating long-lasting climatic consequences due to the large volumes of smoke that would be generated by fires in modern megacities. While it is uncertain how destructive World War III would be, prudence dictates that we apply the same engi- neering conservatism that saved the Golden Gate Bridge from collapsing on its 50th anniversary and assume that preventing World War III is a necessity—not an option.

#### Pakistan collapse causes nuclear war

**Pitt 9** William, a New York Times and internationally bestselling author of two books: "War on Iraq: What Team Bush Doesn't Want You to Know" and "The Greatest Sedition Is Silence”, 5/8, “Unstable Pakistan Threatens the World,” http://www.arabamericannews.com/news/index.php?mod=article&cat=commentary&article=2183

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But a suicide bomber in Pakistan rammed a car packed with explosives into a jeep filled with troops today, killing five and wounding as many as 21, including several children who were waiting for a ride to school. Residents of the region where the attack took place are fleeing in terror as gunfire rings out around them, and government forces have been unable to quell the violence. Two regional government officials were beheaded by militants in retaliation for the killing of other militants by government forces. As familiar as this sounds, it did not take place where we have come to expect such terrible events. This, unfortunately, is a whole new ballgame. It is part of another conflict that is brewing, one which puts what is happening in Iraq and Afghanistan in deep shade, and which represents a grave and growing threat to us all. **Pakistan is now trembling on the edge of violent chaos, and is doing so with nuclear weapons in its hip pocket, right in the middle of one of the most dangerous neighborhoods in the world.** The situation in brief: Pakistan for years has been a nation in turmoil, run by a shaky government supported by a corrupted system, dominated by a blatantly criminal security service, and threatened by a large fundamentalist Islamic population with deep ties to the Taliban in Afghanistan. All this is piled atop an ongoing standoff with neighboring India that has been the center of political gravity in the region for more than half a century. The fact that Pakistan, and **India, and Russia, and China all possess nuclear weapons** and share the same space means any ongoing or escalating violence over there has the real potential to crack open the very gates of Hell itself. Recently, the Taliban made a military push into the northwest Pakistani region around the Swat Valley. According to a recent Reuters report: The (Pakistani) army deployed troops in Swat in October 2007 and used artillery and gunship helicopters to reassert control. But insecurity mounted after a civilian government came to power last year and tried to reach a negotiated settlement. A peace accord fell apart in May 2008. After that, hundreds — including soldiers, militants and civilians — died in battles. Militants unleashed a reign of terror, killing and beheading politicians, singers, soldiers and opponents. They banned female education and destroyed nearly 200 girls' schools. About 1,200 people were killed since late 2007 and 250,000 to 500,000 fled, leaving the militants in virtual control. Pakistan offered on February 16 to introduce Islamic law in the Swat valley and neighboring areas in a bid to take the steam out of the insurgency. The militants announced an indefinite cease-fire after the army said it was halting operations in the region. President Asif Ali Zardari signed a regulation imposing sharia in the area last month. But the Taliban refused to give up their guns and pushed into Buner and another district adjacent to Swat, intent on spreading their rule. The United States, already embroiled in a war against Taliban forces in Afghanistan, must now face the possibility that Pakistan could collapse under the mounting threat of Taliban forces there. Military and diplomatic advisers to President Obama, uncertain how best to proceed, now face one of the great nightmare scenarios of our time. "Recent militant gains in Pakistan," reported The New York Times on Monday, "have so alarmed the White House that the national security adviser, Gen. James L. Jones, **described the situation as 'one of the very most serious problems we face**.'" "Security was deteriorating rapidly," reported The Washington Post on Monday, "particularly in the mountains along the Afghan border that harbor al-Qaeda and the Taliban, intelligence chiefs reported, and there were signs that those groups were working with indigenous extremists in Pakistan's populous Punjabi heartland. The Pakistani government was mired in political bickering. The army, still fixated on its historical adversary India, remained ill-equipped and unwilling to throw its full weight into the counterinsurgency fight. But despite the threat the intelligence conveyed, Obama has only limited options for dealing with it. Anti-American feeling in Pakistan is high, and a U.S. combat presence is prohibited. The United States is fighting Pakistan-based extremists by proxy, through an army over which it has little control, in alliance with a government in which it has little confidence." It is believed Pakistan is currently in possession of between 60 and 100 nuclear weapons. Because Pakistan's stability is threatened by the wide swath of its population that shares ethnic, cultural and religious connections to the fundamentalist Islamic populace of Afghanistan, fears over what could happen to those nuclear weapons if the Pakistani government collapses are very real. "As the insurgency of the Taliban and Al Qaeda spreads in Pakistan," reported the Times last week, "senior American officials say they are increasingly concerned about new vulnerabilities for Pakistan's nuclear arsenal, including the potential for **militants to snatch a weapon** in transport or to insert sympathizers into laboratories or fuel-production facilities. In public, the administration has only hinted at those concerns, repeating the formulation that the Bush administration used: that it has faith in the Pakistani Army. But that cooperation, according to officials who would not speak for attribution because of the sensitivity surrounding the exchanges between Washington and Islamabad, has been sharply limited when the subject has turned to the vulnerabilities in the Pakistani nuclear infrastructure." "The prospect of turmoil in Pakistan sends shivers up the spines of those U.S. officials charged with keeping tabs on foreign nuclear weapons," reported Time Magazine last month. "Pakistan is thought to possess about 100 — the U.S. isn't sure of the total, and may not know where all of them are. Still, if Pakistan collapses, the U.S. military is primed to enter the country and secure as many of those weapons as it can, according to U.S. officials. Pakistani officials insist their personnel safeguards are stringent, but a sleeper cell could cause big trouble, U.S. officials say." In other words, a shaky Pakistan spells trouble for everyone, especially if America loses the footrace to secure those weapons in the event of the worst-case scenario. **If** Pakistani **militants** ever **succeed in toppling the government**, several very dangerous events could happen at once. Nuclear-armed **India could be galvanized into military action of some kind, as could nuclear-armed China or nuclear-armed Russia**. If the Pakistani government does fall, and all those Pakistani nukes are not immediately accounted for and secured, the specter (or reality) of **loose nukes falling into the hands of terrorist organizations could place the entire world on a collision course with unimaginable disaster**. We have all been paying a great deal of attention to Iraq and Afghanistan, and rightly so. The developing situation in Pakistan, however, needs to be placed immediately on the front burner. The Obama administration appears to be gravely serious about addressing the situation. So should we all.

#### Scenario 3: Alaska

#### DOD facilities in Alaska are vulnerable to grid disruptions now

Warwick 10 Engineer & Researcher at the Pacific Northwest National Laboratory, “Renewable Resource Development on Department of Defense Bases in Alaska: Challenges and Opportunities”, September, http://www.pnl.gov/main/publications/external/technical\_reports/PNNL-19742.pdf)

Alaska Military Facilities There are seven major DOD facilities in Alaska, as follows (see Figure 1 for a map). Fort Richardson (FRA) is the major Army facility in the southern part of the state. It is in Anchorage adjacent to Elmendorf Air Force Base (AFB). There is another cluster of facilities in the north central part of the state near Fairbanks. This includes Fort Wainwright (FWA) on the eastern edge of Fairbanks and Eielson AFB (EAFB) approximately 26 miles southeast of Fairbanks. Roughly 100 miles further southeast of Fairbanks is Fort Greely (FGA) and the training ranges for Fort Wainwright. Facilities of the Ground Missile Defense (GMD) are located on the range as well. While support to Ground Missile Defense is provided by the Army, it is a facility of the Missile Defense Agency. Approximately mid-way between Fairbanks and Anchorage is the Clear Air Force Station (CAFS). The Base Realignment and Closure (BRAC) process resulted in Fort Wainwright having greater control over the lands at Fort Greely and joint-basing of Fort Richardson and Elmendorf AFB under the control of the Air Force as Joint Base Elmendorf-Richardson (JBER). As a result of this consolidation the focus of Army operations is now primarily Fort Wainwright, while the Air Force operates three major facilities. The Air Force facilities are under the Air Force Pacific and Space Commands. Each of the services, including the Navy, operates smaller facilities in remote areas that are either not interconnected to the Alaska power grid or are too small to be of concern for this study. Alaska Utility Infrastructure The electrical system in Alaska is primitive in comparison to that in the lower 48 states and the rest of the developed world because of the harsh climate, large land mass and sparse population. There are two major population centers in the state, Anchorage and Fairbanks, and a cluster of smaller towns scattered across the Kenai Peninsula (see Figure 2). All three areas are linked by a single transmission circuit that is about 600 miles long. It follows the major railroad and highway linking these areas and is therefore called the Railbelt transmission system. Power exchanges along the system are limited primarily as a consequence of the nature of electricity requirements in the state and the associated history of each utility. The climate in Alaska is so harsh that a power outage of any duration can be devastating. As a result, each utility has planned to be able to operate independently of all others. They also plan to have sufficient reserve generating capacity to be able to provide power even if multiple generators are inoperable. The end result is sufficient generating capability to offset the need for integrated operations, and therefore, the need for an extensive transmission system (see Figure 3, from Doyon Utilities). The major interconnected utilities are Golden Valley Electric Association (GVEA), which serves the north central part of the state centered on Fairbanks. The Anchorage area has two primary utilities, Anchorage Municipal Light and Power (ML&P) and Chugach Electric Association (CEA). Matanuska Electric Association (MEA) provides power to the northern suburbs of Anchorage. The GVEA system in the north is connected to the three Anchorage area utilities by a 170-mile transmission line, the Alaska Intertie, owned by the Alaska Energy Authority, which is a “public,” meaning state-owned, corporation of the Department of Commerce (Alaska Energy Authority 1991). Access to the intertie is through an “intertie agreement.” This is standard practice among utilities in regions where there is no independent system operator (ISO) to collectively manage transmission access on behalf of multiple utility owners. The California ISO (CAISO) is an example of an ISO. In this case, Alaska Energy Authority (AEA) contracts with ML&P and GVEA to manage the intertie. As noted previously, to complete the circuit between GVEA and the two Anchorage utilities, transmission has to pass through the MEA system. AEA recently constructed an extension to the intertie to bypass the MEA system and tie in to the CEA system directly. The intertie was initially envisioned as means to distribute power from a large hydropower development project on the Susitna River. This development is north of the Anchorage area and would require connections to both the south and the north to be feasible. The generating capability from the Susitna project could equal the combined generation of Alaska’s major utilities if fully developed. Like all large hydropower projects, this one is controversial and expensive, and consequently has had an on-again, off-again history. Interest in the project remains high, however, given the current dependence on fossil fuel for generation and shrinking supplies of oil from the North Slope and natural gas from the Cook Inlet near Anchorage (see Figure 4). GVEA serves Forts Wainwright and Greely and Eielson AFB. Elmendorf AFB and Fort Richardson (JBER) are served by ML&P. Power flowing between GVEA and ML&P passes through the systems of MEA and CEA because Anchorage is located on the southern edge of Cook Inlet and MEA and CEA are on the northern and eastern edges, respectively. Clear AFS is not connected to any utility power grid. It is in the GVEA territory and could be interconnected by constructing a transmission line approximately 3-miles long. Clear AFS, Eielson AFB, Fort Wainwright, and Fort Greely have their own central plants that provide both heat and power. Therefore, they are self-sufficient and typically operate without grid power. The plants at Clear, Eielson, and Wainwright are coal-fired using low Btu content coal mined near Clear, roughly 100 miles southeast of Fort Wainwright. Coal is delivered by rail. Fort Greely and GMD have diesel-fired generation in place, however because of the cost, Fort Greely uses excess power generated at Fort Wainwright whenever it is available. Power from Wainwright is wheeled by GVEA under a standard service tariff. The wheeling service is somewhat expensive but doesn’t require GVEA customers on either end of the transaction to provide reliability reserves or ancillary services, which are typically required in wholesale wheeling transactions.

#### SMRs on Alaskan bases solve

Holdmann 11 Gwen, Director of Alaska Center for Energy and Power at the University of Alaska Fairbanks, “Small Scale Modular Nuclear Power: an option for Alaska”, February, http://www.uaf.edu/files/acep/Executive-Summary-3-2-11.pdf

Executive Summary¶ Alaska is home to some of the most abundant supplies of fossil fuels and renewable energy resources on the planet. While the Alaska treasury benefits financially from development of these resources for export, the supply of reliable, affordable energy to small and often isolated Alaska markets remains a challenge. These conditions result in energy prices for space heating and electricity that are volatile and expensive in many areas of the state. These high energy prices are a significant burden for Alaska residents and businesses and stifle economic development.¶ Ways to address high energy prices are being deliberated, including the possible construction of one of several proposed natural gas pipeline projects, funding of individual projects in rural communities with access to developable resources, and consideration of a large-scale hydroelectric project to serve the Railbelt. Another possible source of energy is nuclear power.¶ Why discuss the nuclear option? With Alaska’s abundant energy resources, this form of energy might not seem needed. However, Alaska’s resources are not equitably distributed geographically, with some areas located near energy sources (for example, the gas fields of Cook Inlet that supply energy for Anchorage), and many other areas less fortunate. In particular, communities in rural Alaska face very high energy prices due to reliance on imported diesel fuel, and many do not have access to developable local resources that can appreciably reduce this dependence. To a lesser degree, the Fairbanks area also lacks low-cost, locally abundant energy resources. It is possible that the new small-scale modular nuclear power plants could lower the cost of energy in some of these locations.¶ Alaska was not part of the first wave of nuclear power development in the U.S., as the nation’s existing commercial nuclear industry is comprised of 1000 MW reactors that are too large for any Alaska applications. However, as part of a new generation of nuclear power plants worldwide, small modular reactors (SMRs) are being developed that range in size from 10 MWe to 300 MWe. These SMRs would be manufactured in factories, allowing standardized design and fabrication, high quality control, shorter power facility construction times, and reduced finance charges during construction. In larger markets in the Lower 48, multiple SMR modules could be combined to form a single gigawatt-scale power plant, which would have several advantages over a single large reactor, including reduced downtime for maintenance and improved safety. These SMRs would also be appropriately sized for use in Alaska, making nuclear energy a viable option to consider. In addition to providing energy (heat and power) for rural communities and/or the Railbelt, other potential applications include providing energy to military bases, remote mining operations, and other industrial users.

#### Alaskan bases vital to prevent Arctic conflict escalation

Schanz 8 Associate Editor of the Air Force Magazine, “Strategic Alaska”, http://www.airforce-magazine.com/MagazineArchive/Pages/2008/November%202008/1108alaska.aspx

Billy Mitchell saw its great potential in 1935, and now the rest of the world has finally caught on.

More than ever before, the Air Force is paying close attention to its force structure in Alaska. Indeed, a major rush of events in the High North has propelled the 49th state up to the top ranks of service thinking. A resurgent Russia has ramped up its long-range bomber flights nearby. A changing Arctic climate has uncorked a flurry of activity in the region as once inaccessible resources now seem ready for exploitation. Alaska’s strategic Arctic location is viewed as useful for missile defense, air defense, and force deployments to locations ranging from Europe to East Asia and beyond. And the military training space available to USAF there is huge and varied. For these and other reasons, the Air Force has started beefing up its forces in the state. A visitor there sees that the service has been sending its newest and most advanced equipment for Alaskan service, including brand-new F-22 fighters and C-17 transports. "From an airman’s perspective, [it’s] probably the most strategic location," said Lt. Gen. Dana T. Atkins, commander of Alaskan Command and Alaskan NORAD region. The state’s geographic location "makes it hugely of strategic import to the United States and really important in a global context." From Alaskan bases, the Air Force can gain quick access both to the Pacific and European Theaters. Transiting across the Arctic, forces could arrive in Europe faster than if flying from the East Coast of the US, Atkins pointed out. This responsive location has helped to push Alaska to the forefront of USAF’s investment queue. The reinvigoration of Russian bomber patrols over Arctic waters in August 2007 was an opening push of that country’s increasingly assertive power projection efforts. NORAD’s US and Canadian fighters have repeatedly intercepted Russian flights skirting Alaskan airspace. New F-22s at Elmendorf Air Force Base took center stage last fall when Raptors stepped in to fill the role of the temporarily grounded F-15 fleet to intercept Russian Tu-95 Bear bombers. The Air Sovereignty Mission Many of the Raptor pilots leveraged their F-15 backgrounds, and the scrambles led to the development of a new training plan for the air sovereignty mission, said Lt. Col. Orlando Sanchez, director of operations for the 525th Fighter Squadron at Elmendorf. While F-22s are no longer on alert, they may perform intercepts in the future. The commander of Russia’s Air Force, Col. Gen. Alexander Zelin, said in April the country will increase its strategic patrols to as many as 30 a month. "It’s been interesting in the last few years," said Gen. Carrol H. Chandler, chief of Pacific Air Forces, in September. "When I was ... Alaskan Command commander, we had one intercept in the time that I was there. The Russians have continued to put emphasis on long-range aviation; they’ve continued to put emphasis on presence in the Arctic. ... Those numbers have picked up considerably over the last three to four years." Chandler suspects that a "competition for resources" will continue, and perhaps intensify, in the Arctic. Last year, Russia publicized a submarine trip to the bottom of the seabed at the North Pole—where the crew deposited a titanium Russian flag, symbolically marking territory. The Canadians derided the expedition as a "stunt," with Prime Minister Stephen Harper making a trip to Canada’s Arctic region to unveil several major military investments, and following with a new defense strategy, outlining new capabilities in the North. Russia’s focus on Arctic operations is a part of the country’s push to assert its own interests over Siberia’s extended continental shelf—the largest and least explored so far of the world’s continental shelves, according to senior Russian military officials. Geologists believe major oil and gas deposits could potentially become available as the polar ice cap slowly recedes with warming temperatures—a fact that is the focus of increasing attention to the nations claiming Arctic waters. "I don’t see that abating anytime in the near future, and the Russians certainly have the resources at this point" to continue to push into the region, said Chandler. A Resurgent Russia While Russia’s Arctic bellicosity has been on the rise, commanders in the region say the moves have to be kept in perspective. "Is it Cold War games all over again? I don’t think so," said Brig. Gen. Thomas L. Tinsley, who led the 3rd Wing at Elmendorf until his death in July. The moves are not hollow, however, and represent Russia’s "desire to bring their Air Forces back up to the speed they were." Tinsley noted that Russia has doubled the fuel it allots to its strategic aviation forces in order to bring back lost training capability. "But you know we’re constantly testing each others’ intel ability, we’re constantly testing each others’ reaction ability, and that’s just part of it." A big issue in the mix is the filing of standard international flight plans by the Russians, Atkins said. If an aircraft approaches a nation’s sovereign boundary with a flight plan, things would be a lot less complicated, he said. The problem with the Russian long-range bomber missions is that "what we’ve witnessed ... is these flights occur without these flight plans." This is one of the goals of improved mil-to-mil relations with the Russian Far East Military District commanders, Atkins added. "It seems too simple to say that, but if they would just adhere to the protocols that we have all accepted, then I think a lot of the perceived tension will evaporate." The US Coast Guard cooperates closely with the Russians just across the Bering Strait on issues ranging from fishing to limiting piracy, Atkins said. This month a survival search and rescue exercise was to be conducted, and this past summer US forces participated in a homeland defense exercise where a simulated hijacking took place—with command and control elements in both Alaska and Russia simulating the tracking and handing off of the aircraft. Both Atkins and Gen. Victor E. Renuart Jr. at NORAD have been working to invite some of the Russian Far East Military District commanders to visit Alaska to continue building between the two militaries professional relationships—which haven’t always been as close as the Coast Guard’s. "I’m the new guy. I’m going to try to keep building that professional rapport," Atkins quipped. "It would be great to get a rapport like the [Coast Guard’s]. ... I’d like to achieve the same kind of professional tie." In addition to renewed tensions with Russia, increased air and maritime traffic is a growing concern at Alaskan Command. Climate conditions have revealed a host of new Arctic transnational issues.

#### Nuclear war

Wallace and Staples 10 Michael Wallace is Professor Emeritus at the University of British Columbia; Steven Staples is President of the Rideau Institute in Ottawa, March 2010, “Ridding the Arctic of Nuclear Weapons A Task Long Overdue”, http://www.arcticsecurity.org/docs/arctic-nuclear-report-web.pdf

The fact is, the Arctic is becoming a zone of increased military competition. Russian President Medvedev has announced the creation of a special military force to defend Arctic claims. Last year Russian General Vladimir Shamanov declared that Russian troops would step up training for Arctic combat, and that Russia’s submarine fleet would increase its “operational radius.” Recently, two Russian attack submarines were spotted off the U.S. east coast for the first time in 15 years. In January 2009, on the eve of Obama’s inauguration, President Bush issued a National Security Presidential Directive on Arctic Regional Policy. It affirmed as a priority the preservation of U.S. military vessel and aircraft mobility and transit throughout the Arctic, including the Northwest Passage, and foresaw greater capabilities to protect U.S. borders in the Arctic. The Bush administration’s disastrous eight years in office, particularly its decision to withdraw from the ABM treaty and deploy missile defence interceptors and a radar station in Eastern Europe, have greatly contributed to the instability we are seeing today, even though the Obama administration has scaled back the planned deployments. The Arctic has figured in this renewed interest in Cold War weapons systems, particularly the upgrading of the Thule Ballistic Missile Early Warning System radar in Northern Greenland for ballistic missile defence. The Canadian government, as well, has put forward new military capabilities to protect Canadian sovereignty claims in the Arctic, including proposed ice-capable ships, a northern military training base and a deep-water port. Earlier this year Denmark released an all-party defence position paper that suggests the country should create a dedicated Arctic military contingent that draws on army, navy and air force assets with shipbased helicopters able to drop troops anywhere. Danish fighter planes would be tasked to patrol Greenlandic airspace. Last year Norway chose to buy 48 Lockheed Martin F-35 fighter jets, partly because of their suitability for Arctic patrols. In March, that country held a major Arctic military practice involving 7,000 soldiers from 13 countries in which a fictional country called Northland seized offshore oil rigs. The manoeuvres prompted a protest from Russia – which objected again in June after Sweden held its largest northern military exercise since the end of the Second World War. About 12,000 troops, 50 aircraft and several warships were involved. Jayantha Dhanapala, President of Pugwash and former UN under-secretary for disarmament affairs, summarized the situation bluntly: “From those in the international peace and security sector, deep concerns are being expressed over the fact that two nuclear weapon states – the United States and the Russian Federation, which together own 95 per cent of the nuclear weapons in the world – converge on the Arctic and have competing claims. These claims, together with those of other allied NATO countries – Canada, Denmark, Iceland, and Norway – could, if unresolved, lead to conflict escalating into the threat or use of nuclear weapons.” Many will no doubt argue that this is excessively alarmist, but no circumstance in which nuclear powers find themselves in military confrontation can be taken lightly. The current geo-political threat level is nebulous and low – for now, according to Rob Huebert of the University of Calgary, “[the] issue is the uncertainty as Arctic states and non-Arctic states begin to recognize the geo-political/economic significance of the Arctic because of climate change.”

### 1AC – Water Advantage

#### CONTENTION 2: WATER

#### Water shortages coming --- causes instability

AFP 9/10, “World water crisis must be top UN priority: report”, http://www.google.com/hostednews/afp/article/ALeqM5gcIGn59te-BGkDoG1uG6XrAMXO\_A?docId=CNG.96ef5382d53f44338468570447594103.851

WASHINGTON — A rapidly worsening water shortage threatens to destabilize the planet and should be a top priority for the UN Security Council and world leaders, a panel of experts said in a report.¶ The world's diminishing water supply carries serious security, development and social risks, and could adversely affect global health, energy stores and food supplies, said the report titled "The Global Water Crisis: Addressing an Urgent Security Issue," published Monday.¶ The study was released by the InterAction Council (IAC), a group of 40 prominent former government leaders and heads of state, along with the United Nations University's Institute for Water, Environment and Health, and Canada's Walter and Duncan Gordon Foundation.¶ "As some of these nations are already politically unstable, such crises may have regional repercussions that extend well beyond their political boundaries," said Norway's former Prime Minister Gro Harlem Brundtland, a member of the group.¶ The Norwegian leader underscored that the danger is particularly acute in sub-Saharan Africa, western Asia and North Africa, where critical water shortages already exist.¶ She added that water insecurity could wreak havoc "even in politically stable regions."

#### Especially in China, Egypt, and Pakistan --- goes nuclear

NPR 10 (NPR citing Steven Solomon who has written for The New York Times, BusinessWeek, The Economist, Forbes, and Esquire. He has been a regular commentator on NPR’s Marketplace, and has appeared as a featured guest on the late Tim Russert’s CNBC show, NPR’s Talk of the Nation, Bloomberg TV, and on many other news shows. He has addressed the World Affairs Council, Center for Strategic and International Studies (CSIS), and university forums, author of *Water: The Epic Struggle for Wealth, Power, and Civilization and The Confidence Game*, 1/3/10, https://www.npr.org/templates/story/story.php?storyId=122195532)

Just as wars over oil played a major role in 20th-century history, a new book makes a convincing case that many 21st century conflicts will be fought over water. In Water: The Epic Struggle for Wealth, Power and Civilization, journalist Steven Solomon argues that water is surpassing oil as the world's scarcest critical resource. Only 2.5 percent of the planet's water supply is fresh, Solomon writes, much of which is locked away in glaciers. World water use in the past century grew twice as fast as world population. "We've now reached the limit where that trajectory can no longer continue," Solomon tells NPR's Mary Louise Kelly. "Suddenly we're going to have to find a way to use the existing water resources in a far, far more productive manner than we ever did before, because there's simply not enough." One issue, Solomon says, is that water's cost doesn't reflect its true economic value. While a society's transition from oil may be painful, water is irreplaceable. Yet water costs far less per gallon — and even less than that for some. "In some cases, where there are large political subsidies, largely in agriculture, it does not [cost very much]," Solomon says. "In many cases, irrigated agriculture is getting its water for free. And we in the cities are paying a lot, and industries are also paying an awful lot. That's unfair. It's inefficient to the allocation of water to the most productive economic ends." At the same time, Solomon says, there's an increasing feeling in the world that everyone has a basic right to a minimum 13 gallons of water a day for basic human health. He doesn't necessarily have an issue with that. "I think there's plenty of water in the world, even in the poorest and most water-famished country, for that 13 gallons to be given for free to individuals — and let them pay beyond that," he says. Solomon says the world is divided into water haves and have-nots. China, Egypt and Pakistan are just a few countries facing critical water issues in the 21st century. In his book he writes, "Consider what will happen in water-distressed, nuclear-armed, terrorist-besieged, overpopulated, heavily irrigation dependent and already politically unstable Pakistan when its single water lifeline, the Indus river, loses a third of its flow from the disappearance from its glacial water source."

#### Middle East war causes World War 3

The Earl of Stirling 11, hereditary Governor & Lord Lieutenant of Canada, Lord High Admiral of Nova Scotia, & B.Sc. in Pol. Sc. & History; M.A. in European Studies, “General Middle East War Nears - Syrian events more dangerous than even nuclear nightmare in Japan”, http://europebusines.blogspot.com/2011/03/general-middle-east-war-nears-syrian.html

Any Third Lebanon War/General Middle East War is apt to involve WMD on both side quickly as both sides know the stakes and that the Israelis are determined to end, once and for all, any Iranian opposition to a 'Greater Israel' domination of the entire Middle East. It will be a case of 'use your WMD or lose them' to enemy strikes. Any massive WMD usage against Israel will result in the usage of Israeli thermonuclear warheads against Arab and Persian populations centers in large parts of the Middle East, with the resulting spread of radioactive fallout over large parts of the Northern Hemisphere. However, the first use of nukes is apt to be lower yield warheads directed against Iranian underground facilities including both nuclear sites and governmental command and control and leadership bunkers, with some limited strikes also likely early-on in Syrian territory.¶ The Iranians are well prepared to launch a global Advanced Biological Warfare terrorism based strike against not only Israel and American and allied forces in the Middle East but also against the American, Canadian, British, French, German, Italian, etc., homelands. This will utilize DNA recombination based genetically engineered 'super killer viruses' that are designed to spread themselves throughout the world using humans as vectors. There are very few defenses against such warfare, other than total quarantine of the population until all of the different man-made viruses (and there could be dozens or even over a hundred different viruses released at the same time) have 'burned themselves out'. This could kill a third of the world's total population.¶Such a result from an Israeli triggered war would almost certainly cause a Russian-Chinese response that would eventually finish off what is left of Israel and begin a truly global war/WWIII with multiple war theaters around the world. It is highly unlikely that a Third World War, fought with 21st Century weaponry will be anything but the Biblical Armageddon.

**Water scarcity causes Central Asian war**

**Priyadarshi 12** Nitish, lecturer in the department of environment and water management at Ranchi University in India, “War for water is not a far cry”, June 16, <http://www.cleangangaportal.org/node/44>

That's been a constant dilemma for the Central Asian states since they became independent after the Soviet break-up. ¶ Much of Central Asia's water flows from the mountains of Kyrgyzstan and Tajikistan, leaving downstream countries Uzbekistan, Kazakhstan, and Turkmenistan dependent and worried about the effects of planned hydropower plants upstream. ¶ Tashkent fears that those two countries' use of water from Central Asia's two great rivers -- the Syr Darya and Amu Darya -- to generate power will diminish the amount reaching Uzbekistan, whose 28 million inhabitants to make up Central Asia's largest population. ¶ After the collapse of communism in the 1990s, a dispute arose between Hungary and Slovakia over a project to dam the Danube River. It was the first of its type heard by the International Court of Justice and highlighted the difficulty for the Court to resolve such issues decisively. There are 17 European countries directly reliant on water from the Danube so there is clear potential for conflict if any of these countries act selfishly.¶ Experts worry that dwindling water supplies could likely result in regional conflicts in the future. For example, in oil-and-gas rich Central Asia, the upstream countries of Kyrgyzstan and Tajikistan hold 90 percent of the region's water resources, while Uzbekistan, the largest consumer of water in the region, is located downstream.

**Extinction**

**Blank 2k** Stephen J. - Expert on the Soviet Bloc for the Strategic Studies Institute, “American Grand Strategy and the Transcaspian Region”, World Affairs. 9-22

In 1993 Moscow even threatened World War III to deter Turkish intervention on behalf of Azerbaijan. Yet the new Russo-Armenian Treaty and Azeri-Turkish treaty suggest that Russia and Turkey could be dragged into a confrontation to rescue their allies from defeat. 72 Thus Many of the conditions for conventional war or protracted ethnic conflict in which third parties intervene are present in the Transcaucasus. For example, many Third World conflicts generated by local structural factors have a great potential for unintended escalation. Big powers often feel obliged to rescue their lesser proteges and proxies. One or another big power may fail to grasp the other side's stakes, since interests here are not as clear as in Europe. Hence commitments involving the use of nuclear weapons to prevent a client's defeat are not well established or clear as in Europe. Clarity about the nature of the threat could prevent the kind of rapid and almost uncontrolled escalation we saw in 1993 when Turkish noises about intervening on behalf of Azerbaijan led Russian leaders to threaten a nuclear war in that case. Precisely because Turkey is a NATO ally but probably could not prevail in a long war against Russia - or if it could, would trigger a potential **nuclear blow** (not a small possibility given the erratic nature of Russia's declared nuclear strategies) - **the danger of major war is higher here than** almost **everywhere else**. As Richard Betts has observed, The greatest danger lies in areas where (1) the potential for serious instability is high; (2) both superpowers perceive vital interests; (3) neither recognizes that the other’s perceived interest or commitment is as great as its own; (4) both have the capability to inject conventional forces; and, (5) neither has willing proxies capable of settling the situation.74

**Diplomacy doesn’t check**

**Radin 10** Adam, masters in security studies from the naval postgraduate school, “the security implications of water: prospects for instability or cooperation in south and central asia”, March, <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA518674>

Water, an issue so important to numerous facets of each state’s economy and overall stability, must not be left to loosely observed and nonbinding agreements. Tajikistan has even gone as far as to appeal to the United Nations General Assembly to focus on the “Central Asia water dilemma.”142 In a region that is still developing, and where the government’s survival rely more on its relations with it people versus its regional neighbors, **domestic needs will continue to trump international cooperation**. As Linn notes in his plan, the need for global actors to take an active role is likely needed in order for sustained cooperation. Additionally, this also provides an opportunity for Russia to actively insert itself through diplomacy and infrastructural investments, seeing that they still consider the CARs under their sphere of influence.143¶ The chapter presents a contrasting case study to South Asia, as in Central Asia water is not viewed as a regional security issue, but in terms of fulfilling short-term domestic needs. Without the looming threat of conflict or significant retribution from regional neighbors, cooperation is consistently undervalued and abandoned once domestic pressures increase. The problem with this pattern is that resources will likely continue to deteriorate and the CARs will continue to be dependent on each other to provide water and energy. Without sustained and flexible cooperation, the region at the very least will see greater stresses on government to provide for their populations, leading to domestic and potential regional instability.

#### SMRs solve desalination---solves water wars and mission effectiveness

Pfeffer and Macon 2 Robert A, physical scientist at the Army Nuclear and Chemical Agency in Springfield, Virginia, working on nuclear weapons effects, a graduate of Trinity University and has a master's degree in physics from The Johns Hopkins University and William A, project manager at the Nuclear Regulatory Commission, formerly the acting Army Reactor Program Manager at the Army Nuclear and Chemical Agency, "Nuclear Power: An Option for the Army's Future", Jan 16 2002 is last date modified, [www.almc.army.mil/alog/issues/SepOct01/MS684.htm](http://www.almc.army.mil/alog/issues/SepOct01/MS684.htm)

The idea of using nuclear power to produce synthetic fuels, originally proposed in 1963, remains feasible today and is gaining significant attention because of recent advances in fuel cell technology, hydrogen liquefaction, and storage. At the same time, nuclear power has become a significant part of the energy supply in more than 20 countries—providing energy security, reducing air pollution, and cutting greenhouse gas emissions. The performance of the world's nuclear power plants has improved steadily and is at an all-time high. Assuming that nuclear power experiences further technological development and increased public acceptance as a safe and efficient energy source, its use will continue to grow. Nuclear power possibly could provide district heating, industrial process heating, desalination of seawater, and marine transportation.¶ Demand for cost-effective chemical fuels such as hydrogen and methanol is expected to grow rapidly. Fuel cell technology, which produces electricity from low-temperature oxidation of hydrogen and yields water as a byproduct, is receiving increasing attention. Cheap and abundant hydrogen eventually will replace carbon-based fuels in the transportation sector and eliminate oil's grip on our society. But hydrogen must be produced, since terrestrial supplies are extremely limited. Using nuclear power to produce hydrogen offers the potential for a limitless chemical fuel supply with near-zero greenhouse gas emissions. As the commercial transportation sector increasingly moves toward hydrogen fuel cells and other advanced engine concepts to replace the gasoline internal combustion engine, DOD eventually will adopt this technology for its tactical vehicles.¶ The demand for desalination of seawater also is likely to grow as inadequate freshwater supplies become an urgent global concern. Potable water in the 21st century will be what oil was in the 20th century—a limited natural resource subject to intense international competition. In many areas of the world, rain is not always dependable and ground water supplies are limited, exhausted, or contaminated. Such areas are likely to experience conflict among water-needy peoples, possibly prompting the deployment of U.S. ground forces for humanitarian relief, peacekeeping, or armed intervention. A mobile desalination plant using waste heat from a nuclear reactor could help prevent conflicts or provide emergency supplies of freshwater to indigenous populations, and to U.S. deployed forces if necessary.¶ Promising Technology for Tomorrow¶ Compact reactor concepts based on high-temperature, gas-cooled reactors are attracting attention worldwide and could someday fulfill the role once envisioned for the energy depot. One proposed design is the pebble bed modular reactor (PBMR) being developed by Eskom in South Africa. Westinghouse, BNFL Instruments Ltd., and Exelon Corporation currently are supporting this project to develop commercial applications.¶ A similar design is the remote site-modular helium reactor (RS-MHR) being developed by General Atomics. If proven feasible, this technology could be used to replace retiring power plants, expand the Navy's nuclear fleet, and provide mobile electric power for military or disaster relief operations. Ideally, modular nuclear power plants could be operated by a small staff of technicians and monitored by a central home office through a satellite uplink.¶ The technology of both the PBMR and the RS-MHR features small, modular, helium-cooled reactors powered by ceramic-coated fuel particles that are inherently safe and cannot melt under any scenario. This results in simpler plant design and lower capital costs than existing light water reactors. The PBMR, coupled with a direct-cycle gas turbine generator, would have a thermal efficiency of about 42 to 45 percent and would produce about 110 megawatts of electricity (MWe). The smaller RS-MHR would produce about 10 to 25 MWe, which is sufficient for powering remote communities and military bases. Multiple modules can be installed on existing sites and refueling can be performed on line, since the fuel pebbles recycle through the reactor continuously until they are expended. Both designs also feature coolant exit temperatures high enough to support the thermochemical water-splitting cycles needed to produce hydrogen.¶ For military applications, RS-MHR equipment could be transported inland by truck or railroad, or single modules could be built on barges and deployed as needed to coastal regions. The Army's nuclear reactor on the barge Sturgis, which provided electric power to the Panama Canal from 1968 to 1976, demonstrated the feasibility of this concept. In fact, the military previously used several power barges (oil-fired, 30-MWe power plants) during World War II and in Korea and Okinawa as emergency sources of electric power.¶ Research teams around the world also are examining other reactor concepts based on liquid-metal-cooled reactor systems with conventional sodium or lead-alloy coolants and advanced water-cooled systems. The Department of Energy (DOE) is supporting research and development of innovative concepts that are based on ultra-long-life reactors with cartridge cores. These reactors would not require refueling, and they could be deployed in the field, removed at the end of their service life, and replaced by a new system. The proposed international reactor innovative and secure (IRIS) design, funded by DOE's Nuclear Energy Research Initiative, would have a straight burn core lasting 8 years and may be available by 2010. Based on increasing costs of fossil fuels, a growing consensus that greenhouse gas emissions must be reduced, and a growing demand for energy, there is little doubt that we will continue to see significant advances in nuclear energy research and development.¶ Nuclear power is expected to grow in the 21st century, with potential benefits applicable to the military. Small, modular nuclear power reactors in mobile or portable configurations, coupled with hydrogen production and desalination systems, could be used to produce fuel and potable water for combat forces deployed in remote areas and reduce our logistics requirements. Assuming the inevitability of hydrogen fuel replacing fossil fuels, a clearly defined objective that was missing in 1966 now exists.¶ The partnership between DOD and the former AEC to develop Army nuclear reactors contributed to the technology of both military and small commercial power plants. This historical relationship should be renewed based on recent technological advances and projected logistics requirements. DOD logistics planners should reconsider military applications of nuclear power and support ongoing DOE research and development initiatives to develop advanced reactors such as RS-MHR, IRIS, and others. For the Army to fight and win on tomorrow's distant battlefields, nuclear power will have to play a significant role.

### 1AC – Plan

#### The Executive Branch of the United States should acquire electricity from small modular nuclear reactors for mission critical military installations in the United States.

### 1AC – Solvency

#### CONTENTION 3: SOLVENCY

#### Plan’s solves SMRs in the military -- doesn’t pick winners

Andres and Breetz 11 Richard B, Professor of National Security Strategy at the National War College and a Senior Fellow and Energy and Environmental Security and Policy Chair in the Center for Strategic Research, Institute for National Strategic Studies, at the National Defense University and Hanna L, doctoral candidate in the Department of Political Science at The Massachusetts Institute of Technology, February, "Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications", www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf

DOD as First Mover¶ Thus far, this paper has reviewed two of DOD’s most pressing energy vulnerabilities—grid insecurity and fuel convoys—and explored how they could be addressed by small reactors. We acknowledge that there are many uncertainties and risks associated with these reactors. On the other hand, failing to pursue these technologies raises its own set of risks for DOD, which we review in this section: first, small reactors may fail to be commercialized in the United States; second, the designs that get locked in by the private market may not be optimal for DOD’s needs; and third, expertise on small reactors may become concentrated in foreign countries. By taking an early “first mover” role in the small reactor market, DOD could mitigate these risks and secure the long-term availability and appropriateness of these technologies for U.S. military applications.¶ The “Valley of Death.” Given the promise that small reactors hold for military installations and mobility, DOD has a compelling interest in ensuring that they make the leap from paper to production. However, if DOD does not provide an initial demonstration and market, there is a chance that the U.S. small reactor industry may never get off the ground. The leap from the laboratory to the marketplace is so difficult to bridge that it is widely referred to as the “Valley of Death.” Many promising technologies are never commercialized due to a variety of market failures— including technical and financial uncertainties, information asymmetries, capital market imperfections, transaction costs, and environmental and security externalities— that impede financing and early adoption and can lock innovative technologies out of the marketplace. 28 In such cases, the Government can help a worthy technology to bridge the Valley of Death by accepting the first mover costs and demonstrating the technology’s scientific and economic viability.29¶ Historically, nuclear power has been “the most clear-cut example . . . of an important general-purpose technology that in the absence of military and defense related procurement would not have been developed at all.”30 Government involvement is likely to be crucial for innovative, next-generation nuclear technology as well. Despite the widespread revival of interest in nuclear energy, Daniel Ingersoll has argued that radically innovative designs face an uphill battle, as “the high capital cost of nuclear plants and the painful lessons learned during the first nuclear era have created a prevailing fear of first-of-a-kind designs.”31 In addition, Massachusetts Institute of Technology reports on the Future of Nuclear Power called for the Government to provide modest “first mover” assistance to the private sector due to several barriers that have hindered the nuclear renaissance, such as securing high up-front costs of site-banking, gaining NRC certification for new technologies, and demonstrating technical viability.32¶ It is possible, of course, that small reactors will achieve commercialization without DOD assistance. As discussed above, they have garnered increasing attention in the energy community. Several analysts have even argued that small reactors could play a key role in the second nuclear era, given that they may be the only reactors within the means of many U.S. utilities and developing countries.33 However, given the tremendous regulatory hurdles and technical and financial uncertainties, it appears far from certain that the U.S. small reactor industry will take off. If DOD wants to ensure that small reactors are available in the future, then it should pursue a leadership role now.¶ Technological Lock-in. A second risk is that if small reactors do reach the market without DOD assistance, the designs that succeed may not be optimal for DOD’s applications. Due to a variety of positive feedback and increasing returns to adoption (including demonstration effects, technological interdependence, network and learning effects, and economies of scale), the designs that are initially developed can become “locked in.”34 Competing designs—even if they are superior in some respects or better for certain market segments— can face barriers to entry that lock them out of the market. If DOD wants to ensure that its preferred designs are not locked out, then it should take a first mover role on small reactors**.**¶ It is far too early to gauge whether the private market and DOD have aligned interests in reactor designs. On one hand, Matthew Bunn and Martin Malin argue that what the world needs is cheaper, safer, more secure, and more proliferation-resistant nuclear reactors; presumably, many of the same broad qualities would be favored by DOD.35 There are many varied market niches that could be filled by small reactors, because there are many different applications and settings in which they can be used, and it is quite possible that some of those niches will be compatible with DOD’s interests.36¶ On the other hand, DOD may have specific needs (transportability, for instance) that would not be a high priority for any other market segment. Moreover, while DOD has unique technical and organizational capabilities that could enable it to pursue more radically innovative reactor lines, DOE has indicated that it will focus its initial small reactor deployment efforts on LWR designs.37¶ If DOD wants to ensure that its preferred reactors are developed and available in the future, it should take a leadership role now. Taking a first mover role does not necessarily mean that DOD would be “picking a winner” among small reactors, as the market will probably pursue multiple types of small reactors. Nevertheless, DOD leadership would likely have a profound effect on the industry’s timeline and trajectory.

#### Military is best at advancing SMRs

Cohen 12 Armond, Executive Director for the Clean Air Task Force, "DoD: A Model for Energy Innovation?", May 21, energy.nationaljournal.com/2012/05/powering-our-military-whats-th.php

Unlike most other agencies, including the Energy Department, the Pentagon is the ultimate customer for the new technology it helps create, spending some $200 billion each year on R&D and procurement. The implications of DoD’s role as customer have not been widely appreciated, as:¶ · DoD, uniquely in government, supports multi-year, billion-dollar “end to end” innovation efforts that produce technology that is continuously tested, deployed and refined on bases and in the field, providing real world feedback that leads to increases in performance and reductions in cost. By contrast, most of the federal government’s civilian energy innovation efforts involve research loosely connected at best with the few commercialization efforts that it supports.¶ · DoD and its contractors know how to bring together multiple innovations to achieve system-level advances leading to big performance gains (examples range from nuclear submarines to unmanned aircraft to large-scale information systems). This systems approach is precisely what is needed to advance clean energy technologies.¶ · Relatively stable, multi-year funding allows the Pentagon to pursue “long cycle” innovation that is necessary for large, capital- intensive technologies and supports a highly capable contractor base that can respond to changing national security demands.¶ · The Pentagon’s scope and budget has allowed it to experiment with new and creative innovation tools such as the well-known Defense Advanced Projects Research Agency, which has produced extraordinary technological breakthroughs; and the Environmental Security Technology Certification Program, which develops and demonstrates cost-effective improvements in environmental and energy technologies for military installations and equipment.¶ · Because of DoD’s size and demands for performance and reliability, it is unique among government and private sector organizations as a demonstration test-bed. Smart-grid technologies and advanced energy management systems for buildings are already poised to benefit from this aspect of the Pentagon’s innovation system.¶ · DoD has collaborated effectively with other federal agencies, including the Department of Energy and its predecessors (for example, to advance nuclear energy technologies). Continuing competition and cooperation between DoD and DOE will spur energy innovation. DoD’s innovation capabilities can enhance U.S. national security, improve U.S. international competitiveness, and spur global energy restructuring and greenhouse gas emissions reductions.¶ At the same time, while providing enormous opportunities to develop and test energy efficiency technologies and small scale distributed energy appropriate to forward bases, the Pentagon is unlikely to become an all-purpose hub for advancing all categories of clean-energy technologies, because its energy innovation activities will be sustainable only where they can support the nation’s defense capabilities.¶ Therefore, many other large-scale technologies that are of great importance to improving the environment, such as carbon-free central station generation or zero carbon transportation, may not as easily fit with DoD’s mission. Possible exceptions might include small modular nuclear reactors that can be used for producing independent, non-grid power at military bases, or, conceivably, zero-carbon liquid fuels other than anything resembling current generation biofuels.¶ In any case, the challenge for military-led energy innovation is to further define and delineate avenues for improved clean-energy performance that are linked to the national strategic mission. History shows that when such linkages are strong, DoD’s innovation capabilities are second to none.

#### SMRs solve nuclear downsides

Ringle 10 John, Professor Emeritus of Nuclear Engineering at Oregon State University, "Reintroduction of reactors in US a major win", November 13, robertmayer.wordpress.com/2010/11/21/reintroduction-of-reactors-in-us-a-major-win/

Small nuclear reactors will probably be the mechanism that ushers in nuclear power’s renaissance in the U.S.¶ Nuclear plants currently supply about 20 percent of the nation’s electricity and more than 70 percent of our carbon-free energy. But large nuclear plants cost $8 billion to $10 billion and utilities are having second thoughts about how to finance these plants.¶ A small modular reactor (SMR) has several advantages over the conventional 1,000-megawatt plant:¶ 1. It ranges in size from 25 to 140 megawatts, hence only costs about a tenth as much as a large plant.¶ 2. It uses a cookie-cutter standardized design to reduce construction costs and can be built in a factory and shipped to the site by truck, railroad or barge.¶ 3. The major parts can be built in U.S. factories, unlike some parts for the larger reactors that must be fabricated overseas.¶ 4. Because of the factory-line production, the SMR could be built in three years with one-third of the workforce of a large plant.¶ 5. More than one SMR could be clustered together to form a larger power plant complex. This provides versatility in operation, particularly in connection with large wind farms. With the variability of wind, one or more SMRs could be run or shut down to provide a constant base load supply of electricity.¶ 6. A cluster of SMRs should be very reliable. One unit could be taken out of service for maintenance or repair without affecting the operation of the other units. And since they are all of a common design, replacement parts could satisfy all units. France has already proved the reliability of standardized plants.¶ At least half a dozen companies are developing SMRs, including NuScale in Oregon. NuScale is American-owned and its 45-megawatt design has some unique features. It is inherently safe. It could be located partially or totally below ground, and with its natural convection cooling system, it does not rely on an elaborate system of pumps and valves to provide safety. There is no scenario in which a loss-of-coolant accident could occur.

#### DOE funding SMRs now---more to come

Holly 12/6 Derrill, ECT Staff Writer, "DOE Advances Small Nuclear Reactors", 2012, [www.ect.coop/power-supply/power-plants/doe-funds-small-nuclear-reactors-project/50667](http://www.ect.coop/power-supply/power-plants/doe-funds-small-nuclear-reactors-project/50667)

The Department of Energy has agreed to help fund a small modular nuclear reactor design backed by a consortium that includes several generation and transmission electric cooperatives.¶ After reviewing several proposals, DOE selected a project led by Bechtel Corp., Babcock & Wilcox and the Tennessee Valley Authority. The mPower Consortium was formed in in 2010 to support the Generation mPower small modular nuclear reactor design. The consortium includes investor-owned FirstEnergy, TVA, and 13 G&Ts.¶ The lead companies have proposed deployment of up to five 180 megawatt Babcock & Wilcox mPower reactors at TVA’s abandoned Clinch River Breeder Reactor site in Oak Ridge, Tenn.¶ “DOE will match future engineering and design development, design certification and licensing activities up to a cap of $452 million,” said Sandra Byrd, vice president of member and public relations for Little Rock-based Arkansas Electric Cooperative Corp. “Although the mPower design is already far along, it still requires more testing and the design certification documents have to be developed and submitted to the Nuclear Regulatory Commission for approval.”¶ Plans call for the consortium to submit documentation to NRC by December 2013. An early site permit and a construction and operating license application will also be developed for submission over the next year.¶ “This will be the first time that a small nuclear design has been submitted to NRC for review and approval,” said Byrd, adding that commercial operation could begin between 2020 and 2022. Successful deployment of the technology is expected to lead to development of nuclear power plants roughly one-third the size of existing facilities, and DOE plans to issue additional funding opportunities.¶ “More is obviously better. Different designs may lend themselves to different utility operating situations,” said Byrd. Co-ops supported proposals from three of the four companies that sought consideration under the initial DOE cost-sharing grant.¶ Arkansas Electric Cooperative Corp. is among mPower Consortium backers also supporting the NexStart SMR Alliance led by Westinghouse and investor-owned Ameren Missouri. Springfield, Mo.-based Associated Electric Cooperative is also supporting the group.

# 2AC

## Case

### AT: Desal Bad – Top Shelf

#### No offense—fossil fuel desal inevitable, but is unsustainable—nuclear key

Khamis 9 I, IAEA, A global overview on nuclear desalination, Int. J. Nuclear Desalination, Vol. 3, No. 4

As desalination and water reuse expansion in the Middle East and the world continues at a rapid pace, these innovations must be integrated into the next generation of water facilities. The integrated nuclear energy systems would lead to considerably lower power and water costs than the corresponding coal-based systems. When external costs for different energies are internalised in power and water costs, the relative cost differences are considerably increased in favour of the nuclear systems. Financial analysis further confirms these conclusions (Nisan et al., 2007; Wade, 2001). Integrated seawater desalination systems are likely to be deployed intensively in the future in view of the very high demands for water and electrical energy in many regions of the world. A future desalination strategy based uniquely on the utilisation of fossil-fuelled systems is not sustainable because of the high carbon footprint from both power generation and desalination. At the moment, the only solution to reduce the carbon footprint of integrated desalination systems appears to be by utilising nuclear and renewable energies (International Atomic Energy Agency, 2008b).

#### No damage to the ocean and the alt is worse

Schiffler 4 Manuel, economist in the World Bank's Middle East and North Africa Region, Perspectives and challenges for desalination in the 21st century, Desalination 165, 1-9

The environmental footprint of desalination has been reduced through technological progress. However, some significant environmental impacts remain, in particular during the operating phase of the plants. One major impact is the discharge of brine — a concentrated salt solution that may be hot and may contain various chemicals — on coastal or marine eco-systems or, in the case of inland brackish water desalination, on rivers and aquifers. Another major impact is the emission of greenhouse gases in the production of electricity and steam needed to power the desalination plants. Furthermore, abstraction of brackish groundwater for desalination can have significant environ- mental impacts. Other impacts of usually more limited nature include noise, visual disturbance, interference with public access and recreation, possible impacts from seawater intakes, as well as various environmental impacts during the construction phase and potential impacts from accidental spills. There can also be positive environmental impacts from desalination, if desalination reduces the pressure on conventional water resources. In particular, seawater desalination can help to relieve the pressure on overexploited coastal aquifers and thus prevents seawater intrusion, a widespread phenomenon causing quasi-irreversible damage in coastal areas around the world. In some cases, seawater desalination can be an alternative to the use of fossil groundwater further inland or to the construction of large dams and inter-basin transfers that are usually associated with significant social and environmental costs. An internationally agreed environmental assessment methodology for desalination plants does not exist so far and its development would be desirable. In assessing the environmental impact of numerous desalination projects on the marine environment, it is important to assess the cumulative impacts of new and existing plants as well as of discharges from other sources. A strategic environmental assessment is more appropriate for that purpose than a series of isolated, project- related environmental assessments. In many of the focal countries of the present study, the legal basis and institutional capacity for environmental assessments in general is weak and there is no or very little experience with environmental assessments of individual desalination projects, not to speak of strategic environmental assessments. To the author’s best knowledge, no stra- tegic environmental assessment of brine dis- charges into the Arab Gulf (Persian Gulf), which is a shallow, nearly closed water body that receives the highest discharge of brine from desalination processes in the world, has been undertaken to date. While impacts obviously differ depending on the characteristics and sensitivity of the local marine environment, future impacts from brine discharge into the Mediterranean are expected to be relatively limited compared to impacts in the Arab Gulf, but may be more restrictive if European directives are applied in future EuroMed agreements. Mitigation measures include preventive mea- sures, such as the strengthening of environmental institutions and water conservation, and reactive measures, which involve physical changes to a plant or process. The latter include optimized siting in the construction phase, the use of more energy-efficient technologies, design and treatment techniques to reduce damage to the marine environment, including the appropriate design of sea outfalls and the mixing of brine with seawater before discharge, and architectural measures to reduce visual impact especially for tourism purposes.

### Central Asia Draws in Russia

#### Nuclear war

Shorr 1 (Ira, Analyst, Institute for Policy Studies, Washington D.C., “Greatest Peril is Still Nuclear,” THE RECORD (BERGEN COUNTY, NJ), October 14, 2001, LN)

While these actions helped the nuclear superpowers back away from using weapons of mass destruction at a precarious time, it's sobering to note that the United States and Russia are still courting nuclear disaster. Despite no longer being strategic foes they still maintain thousands of nuclear weapons on hair-trigger alert -- poised for a quick launch. This is a threat that no missile defense system will ever be able to protect us from. This process of keeping nuclear weapons on a hair-trigger means that leaders on both sides have just minutes to assess whether a warning of an attack is real or false. And while the threats we faced during the Cold War came from Soviet strength -- the danger today comes more from Russia's weakness. For example, Russia's troubled economy has led to the profound decay of its early warning satellite system. A fire last May that destroyed a critical facility used to control Russian warning satellites has made things even worse. "Russia has completely lost its space-based early warning capabilities," says Bruce Blair of the Center for Defense Information. "In essence, the country's ability to tell a false alarm from a real warning has been nearly crippled. " False alarms on both sides have already brought us to the brink of nuclear war. What will happen now if there is a war in the volatile neighborhood of Central Asia -- a region that includes nuclear powers India, Pakistan, and Russia? Former Sen. Sam Nunn brought the point home in a recent speech: "The events of Sept. 11 gave President Bush very little time to make a very difficult decision -- whether to give orders to shoot down a commercial jetliner filled with passengers. Our current nuclear posture in the United States and Russia could provide even less time for each president to decide on a nuclear launch that could destroy our nations. " Nunn called on Presidents Bush and Putin to "stand-down" their nuclear forces to "reduce toward zero the risk of accidental launch or miscalculation and provide increased launch decision time for each president. " In the spirit of the courageous steps his father took to decrease the nuclear threat 10 years ago, President Bush should take action now to remove nuclear weapons from hair-trigger alert. This would send a signal to the world that in this volatile time, the U.S. is serious about preventing the use of nuclear weapons.

## CP

### Water Causes Pakistan War

#### Pakistan water scarcity causes nuclear war with India

Dr Akmal Hussain 11, The Express Tribune, “Pakistan’s water crisis”, 8-25, http://tribune.com.pk/story/231905/pakistans-water-crisis/

A water crisis is emerging which could have major implications for Pakistan’s economy and society. Effective management of this crisis first requires urgent mitigation and adaptation measures with close cooperation amongst Pakistan’s provinces of Khyber-Pakhtunkhwa, Punjab and Sindh on the one hand and then between Pakistan and India on the other. If the necessary collaboration for cooperative management of the Indus basin water resources is not undertaken expeditiously, the resultant economic crisis could lead to a war with India.¶ The problem of water scarcity in the Indus basin is predicated partly on the inherent limitations of water supply in the Indus River System and partly on the growing water demand associated with inefficient water use in the process of economic and population growth. Unsustainable development practices have exacerbated the problem with intrusion of salinity into the ground water, contamination of aquifers with harmful chemicals such as fluoride and arsenic and pollution of surface water due to lack of an institutional framework for environmentally safe disposal of urban and industrial waste. An important dimension of the water issue in the years ahead is the phenomenon of climate change, which could take the crisis to a critical level.¶ Water scarcity can be measured by the availability of water compared with the generally accepted minimum per capita requirement of 1,700 cubic metres per person per year. In their book, Freshwater Under Threat: South Asia, Mukand S Babel and Shahriar M Wahid have estimated that the per capita availability of water in the Indus basin is 1,329 cubic metres per capita per year. This is significantly below the threshold requirement. Another interesting indicator of the water problem is the measure of development pressure on water resources, which is the percentage of available water supply relative to the total water resources. This ratio is as high as 89 per cent for the Indus basin compared to only 15 per cent for the Ganges-Brahmaputra-Meghna (GBM) basin. This indicates the relatively greater development pressure on the Indus basin.¶ Worse, the utilisation of water for production is also highly inefficient by global standards. Water use efficiency is measured in terms of the GDP per unit of water used. In the case of the five top food producers in the world (Brazil, China, France, Mexico and the US) the water use efficiency is $23.8 per cubic metre. The figure is as low as $3.34 for the Indus basin.¶ The problem of water scarcity is expected to become more acute in the future due to the adverse impact of climate change. Dr Leena Srivastava, in a recent research paper, provides evidence to show that some of the Himalayan glaciers are melting more rapidly than the global average and this could increase the frequency of floods in the short run and increase water shortages in the long term by reducing river flows in South Asia. Furthermore, according to the UN’s Intergovernmental Panel on Climate Change report, given the sensitivity of existing seeds to heat, global warming could result in a 30 per cent reduction in the yield per acre of food crops in South Asia.¶ Science and empirical evidence make clear that existing water scarcity, when combined with the impact of climate change, could place critical stress on the economy and society of Pakistan in particular and South Asia in general: major food shortages, increased frequency of natural disasters, large scale dislocations of population and destabilising contention between upper and lower riparian regions.¶ Effective management of this crisis in Pakistan requires close cooperation with India in joint watershed management, increasing the efficiency of irrigation and water use, joint development of technologies, sustainable agriculture practices and institutional arrangements to manage food shortages as well as natural disasters. When faced with a common threat, ideology must be replaced by rationality in the conduct of governance. If we fail to do so, natural disasters could **trigger the man-made catastrophe of war.**

### Water---Latin America

#### Water scarcity collapses Latin America

Seneviratne 7 Gamini, Nuclear News’s Vienna Correspondent, “Research projects show nuclear

desalination economical”, April, <http://www.ans.org/pubs/magazines/nn/docs/2007-4-3.pdf>

As in most regions of the world, Latin America, and particularly Argentina, has an extensive coastal area with populations lacking fresh water, representing an important restriction for its socioeconomic development. Nuclear desalination is a possible solution to this ongoing scarcity. Using nuclear power to generate fresh water as well as electricity is economically preferable to energy from fossil fuels. A CAREM plant (a small reactor developed jointly by Investigaciones Aplicadas Sociedad del Estado [INVAP] and the Comisión Nacional de Energia Atómica), coupled to an RO system, is an economical and technically feasible option, as well as a safe and reliable alternative for desalination and energy production in Puerto Deseado and other cities with water scarcity problems.

#### Goes global and nuclear

Rochlin 94(James Francis, Professor of Political Science at Okanagan University College. “Discovering the Americas: the evolution of Canadian foreign policy towards Latin America,” p. 130-131)

While there were economic motivations for Canadian policy in Central America, security considerations were perhaps more important. Canada possessed an interest in promoting stability in the face of a potential decline of U.S. hegemony in the Americas. Perceptions of declining U.S. influence in the region – which had some credibility in 1979-1984 due to the wildly inequitable divisions of wealth in some U.S. client states in Latin America, in addition to political repression, under-development, mounting external debt, anti-American sentiment produced by decades of subjugation to U.S. strategic and economic interests, and so on – were linked to the prospect of **explosive events** occurring in the hemisphere. Hence, the Central American imbroglio was viewed as a fuse which could ignite a cataclysmic process throughout the region. Analysts at the time worried that in a worst-case scenario, instability created by a regional war, beginning in Central America and spreading elsewhere in Latin America, might preoccupy Washington to the extent that the United States would be unable to perform adequately its important hegemonic role in the international arena – a concern expressed by the director of research for Canada’s Standing Committee Report on Central America. It was feared that such a predicament could **generate increased global instability** and perhaps even a **hegemonic war**. This is one of the motivations which led Canada to become involved in efforts at regional conflict resolution, such as Contadora, as will be discussed in the next chapter.

## DAs

### 2AC Russia-India DA

#### No commercialization

Marqusee 12 Jeffrey, Executive director at the Strategic Environmental Research and Development Program at the DOD, “Military Installations and Energy Technology Innovations”, Energy Innovation at the Department of Defense: Assessing the Opportunities, March, PDF online

Decisions on implementing these technologies will be made in a distributed sense and involve tens of thousands of individual decision makers if they are ever to reach large-scale deployment. These are the energy technologies that DoD installations will be buying, either directly through appropriated funds or in partnership with third-party financing through mechanisms such as Energy Saving Performance Contracts (ESPCs) or Power Purchase Agreements (PPAs). In the DOE taxonomy shown above, these distributed installation energy technologies cover the demand space on building and industrial efficiency, portions of the supply space for clean electricity when restricted to distributed generation scale, and a critical portion in the middle where microgrids and their relationship to energy storage and electric vehicles reside.¶ There is an extensive literature on the impediments to commercialization of these emerging energy technologies for the building infrastructure market.82 A key impediment (and one found not just in the building market) is that energy is a cost of doing business, and thus rarely the prime mission of the enterprise or a priority for decision makers. In contrast to sectors such as information technology and biotechnology, where advanced technologies often provide the end customer with a new capability or the ability to create a new business, improvements in energy technology typically just lower the cost of an already relatively low-cost commodity (electricity). As a result, the market for new technology is highly price sensitive, and life-cycle costs are sensitive to the operational efficiency of the technology, to issues of maintenance, and to the estimated lifetime of the component. Thus, a first user of a new energy technology bears significantly more risk while getting the same return as subsequent users.¶ A second impediment is the slow pace of technological change in the U.S. building sector: it takes years, if not decades, for new products to achieve widespread use. One reason for this is that many firms in the industry are small; they lack the manpower to do research on new products, and they have limited ability to absorb the financial risks that innovation entails.¶ A third impediment to the widespread deployment of new technologies arises from the fragmented or distributed nature of the market; decisions are usually made at the individual building level, based on the perceived return on investment for a specific project. The structural nature of decision making and ownership can be a significant obstacle to technological innovation in the commercial market:¶ 􀁑 The entity that bears the up-front capital costs is often not the same as the one that reaps the operation and management savings (this is known as the “split incentives” or “principal agent” problem).¶ 􀁑 Key decision makers (e.g., architecture and engineering firms) face the liabilities associated with operational failure but do not share in the potential savings, creating an incentive to prefer reliability over innovation.¶ 􀁑 Financing mechanisms for both energy efficiency (by energy service companies using an ESPC) and distributed and renewable energy generation (through PPA and the associated financing entities) require high confidence in the long-term (decade-plus) performance of the technology, and thus investors are unwilling to put capital at risk on new technologies.¶ Other significant barriers to innovation include a lack of information, which results in high transactional costs, and an inability to properly project future savings. As the National Academy of Sciences has pointed out, the lack of “evidence based” data inhibits making an appropriate business case for deployment.83 The return on the capital investment is often in terms of avoided future costs. Given the limited visibility of those costs when design decisions are being made, it is often hard to properly account for them or see the return. This is further exacerbated by real and perceived discount rates that can lead to suboptimal investment decisions.¶ Finally, the lack of significant operational testing until products are deployed severely limits the rapid and complete development of new energy technologies. The impact of real-world conditions such as building operations, variable loads, human interactions, and so forth makes it very difficult to optimize technologies, and specifically inhibits any radical departure from standard practice. These barriers are particularly problematic for new energy efficiency technologies in the building retrofit market, which is where DoD has the greatest interest. In addition to these barriers, which are common across DoD and the commercial market, DoD has some unique operational requirements (security and information assurance issues) that create other barriers.

#### Plan can’t reverse negotiating positions

Lewis 12 Jeffrey Lewis, director of the East Asia Nonproliferation Program at the James Martin Center for Nonproliferation, 8/1/12, It's Not as Easy as 1-2-3, www.foreignpolicy.com/articles/2012/08/01/it\_s\_not\_as\_easy\_as\_1\_2\_3?page=full

The Obama administration largely finds itself an accidental architect of the new civil nuclear order. In addition to a new wave of countries seeking nuclear help from the United States, many 123 agreements that were negotiated 30 years ago -- during the last wave of enthusiasm for nuclear power -- will expire between **now and 2014**. When this flurry of activity ends, the United States will have negotiated more than a dozen nuclear cooperation agreements in a four-year period, many with the most important emerging nuclear powers. Dick Stratford, a senior State Department official, told a conference that he carried around a little list in his pocket because he had trouble keeping all the negotiations straight.

#### Plan doesn’t solve non-prolif cred

Timothy A. Frazier 11, Blue Ribbon Comm. On America’s Nuclear Future, 7-29-2011, “Draft Report to the Secretary of Energy,” <http://cybercemetery.unt.edu/archive/brc/20120620231124/http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf>

The Blue Ribbon Commission on America’s Nuclear Future (the Commission) was chartered to recommend a new strategy for managing the back end of the nuclear fuel cycle. We approached this task from different perspectives but with a shared sense of urgency. Put simply, this nation’s failure to come to grips with the nuclear waste issue has already proved damaging and costly and it will be more damaging and more costly the longer it continues: damaging to prospects for maintaining a potentially important energy supply option for the future, damaging to state–federal relations and public confidence in the federal government’s competence, and damaging to America’s standing in the world— not only as a source of nuclear technology and policy expertise but as a leader on global issues of nuclear safety, non-proliferation, and security. Continued stalemate is also costly—to utility ratepayers, to communities that have become unwilling hosts of long-term nuclear waste storage facilities, and to U.S. taxpayers who face mounting liabilities, already running into billions of dollars, as a result of the failure by both the executive and legislative branches to meet federal waste management commitments. A new strategy is needed, not just to address these damages and costs but because this generation has a fundamental ethical obligation to avoid burdening future generations with the entire task of finding a safe permanent solution for managing hazardous nuclear materials they had no part in creating. At the same time, we owe it to future generations to avoid foreclosing options wherever possible so that they can make choices—about the use of nuclear energy as a low-carbon energy resource and about the management of the nuclear fuel cycle—based on emerging technologies and developments and their own best interests. Almost exactly one year after the Commission was chartered and less than five months before our initial draft report was due, an unforeseen event gave new urgency to our charge and brought the problem of nuclear waste into the public eye as never before. A devastating earthquake off the northeastern coast of Japan and the unprecedented tsunami that followed set off a chain of problems at the Fukushima Daichii nuclear power station that eventually led to the worst nuclear accident since Chernobyl. In the weeks of intense media coverage that followed, many Americans became newly aware of the presence of tens of thousands of tons of spent fuel at more than 70 nuclear power plant sites around this country - and of the fact that the United States currently has no physical capacity to do anything with this spent fuel other than to continue to leave it at the sites where it was first generated. 1 The strategy we recommend in this draft report has seven key elements: 1. A new, consent-based approach to siting future nuclear waste management facilities. 2. A new organization dedicated solely to implementing the waste management program and empowered with the authority and resources to succeed. 3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management. 4. Prompt efforts to develop one or more geologic disposal facilities. 5. Prompt efforts to develop one or more consolidated interim storage facilities. 6. Support for continued U.S. innovation in nuclear energy technology and for workforce development. 7. Active U.S. leadership in international efforts to address safety, waste management, nonproliferation, and security concerns. The elements of this strategy will not be new to those who have followed the U.S. nuclear waste program over the years. All of them are necessary to establish a truly integrated national nuclear waste management system, to create the institutional leadership and wherewithal to get the job done, and to ensure that the United States remains at the forefront of technology developments and international responses to evolving nuclear safety, non-proliferation, and security concerns.

### AT: Indo-Pak Impact

#### No Indo-Pak war

Mutti 9— Master’s degree in International Studies with a focus on South Asia, U Washington. BA in History, Knox College. over a decade of expertise covering on South Asia geopolitics, Contributing Editor to Demockracy journal (James, 1/5, Mumbai Misperceptions: War is Not Imminent, http://demockracy.com/four-reasons-why-the-mumbai-attacks-wont-result-in-a-nuclear-war/)

Fearful of imminent war, the media has indulged in frantic hand wringing about Indian and Pakistani nuclear arsenals and renewed fears about the Indian subcontinent being “the most dangerous place on earth.” As an observer of the subcontinent for over a decade, I am optimistic that war will not be the end result of this event. As horrifying as the Mumbai attacks were, they are not likely to drive India and Pakistan into an armed international conflict. The media frenzy over an imminent nuclear war seems the result of the media being superficially knowledgeable about the history of Indian-Pakistani relations, of feeling compelled to follow the most sensationalistic story, and being recently brainwashed into thinking that the only way to respond to a major terrorist attack was the American way – a war. Here are four reasons why the Mumbai attacks will not result in a war: 1. For both countries, a war would be a disaster. India has been successfully building stronger relations with the rest of the world over the last decade. It has occasionally engaged in military muscle-flexing (abetted by a Bush administration eager to promote India as a counterweight to China and Pakistan), but it has much more aggressively promoted itself as an emerging economic powerhouse and a moral, democratic alternative to less savory authoritarian regimes. Attacking a fledgling democratic Pakistan would not improve India’s reputation in anybody’s eyes. The restraint Manmohan Singh’s government has exercised following the attacks indicates a desire to avoid rash and potentially regrettable actions. It is also perhaps a recognition that military attacks will never end terrorism. Pakistan, on the other hand, couldn’t possibly win a war against India, and Pakistan’s military defeat would surely lead to the downfall of the new democratic government. The military would regain control, and Islamic militants would surely make a grab for power – an outcome neither India nor Pakistan want. Pakistani president Asif Ali Zardari has shown that this is not the path he wants his country to go down. He has forcefully spoken out against terrorist groups operating in Pakistan and has ordered military attacks against LeT camps. Key members of LeT and other terrorist groups have been arrested. One can hope that this is only the beginning, despite the unenviable military and political difficulties in doing so. 2. Since the last major India-Pakistan clash in 1999, both countries have made concrete efforts to create people-to-people connections and to improve economic relations. Bus and train services between the countries have resumed for the first time in decades along with an easing of the issuing of visas to cross the border. India-Pakistan cricket matches have resumed, and India has granted Pakistan “most favored nation” trading status. The Mumbai attacks will undoubtedly strain relations, yet it is hard to believe that both sides would throw away this recent progress. With the removal of Pervez Musharraf and the election of a democratic government (though a shaky, relatively weak one), both the Indian government and the Pakistani government have political motivations to ease tensions and to proceed with efforts to improve relations. There are also growing efforts to recognize and build upon the many cultural ties between the populations of India and Pakistan and a decreasing sense of animosity between the countries. 3. Both countries also face difficult internal problems that present more of a threat to their stability and security than does the opposite country. If they are wise, the governments of both countries will work more towards addressing these internal threats than the less dangerous external ones. The most significant problems facing Pakistan today do not revolve around the unresolved situation in Kashmir or a military threat posed by India. The more significant threat to Pakistan comes from within. While LeT has focused its firepower on India instead of the Pakistani state, other militant Islamic outfits have not. Groups based in the tribal regions bordering Afghanistan have orchestrated frequent deadly suicide bombings and clashes with the Pakistani military, including the attack that killed ex-Prime Minister Benazir Bhutto in 2007. The battle that the Pakistani government faces now is not against its traditional enemy India, but against militants bent on destroying the Pakistani state and creating a Taliban-style regime in Pakistan. In order to deal with this threat, it must strengthen the structures of a democratic, inclusive political system that can also address domestic problems and inequalities. On the other hand, the threat of Pakistani based terrorists to India is significant. However, suicide bombings and attacks are also carried out by Indian Islamic militants, and vast swaths of rural India are under the de facto control of the Maoist guerrillas known as the Naxalites. Hindu fundamentalists pose a serious threat to the safety of many Muslim and Christian Indians and to the idea of India as a diverse, secular, democratic society. Separatist insurgencies in Kashmir and in parts of the northeast have dragged on for years. And like Pakistan, India faces significant challenges in addressing sharp social and economic inequalities. Additionally, Indian political parties, especially the ruling Congress Party and others that rely on the support of India’s massive Muslim population to win elections, are certainly wary about inflaming public opinion against Pakistan (and Muslims). This fear could lead the investigation into the Mumbai attacks to fizzle out with no resolution, as many other such inquiries have. 4. The international attention to this attack – somewhat difficult to explain in my opinion given the general complacency and utter apathy in much of the western world about previous terrorist attacks in places like India, Pakistan, and Indonesia – is a final obstacle to an armed conflict. Not only does it put both countries under a microscope in terms of how they respond to the terrible events, it also means that they will feel international pressure to resolve the situation without resorting to war. India and Pakistan have been warned by the US, Russia, and others not to let the situation end in war. India has been actively recruiting Pakistan’s closest allies – China and Saudi Arabia – to pressure Pakistan to act against militants, and the US has been in the forefront of pressing Pakistan for action. Iran too has expressed solidarity with India in the face of the attacks and is using its regional influence to bring more diplomatic pressure on Pakistan.

### 2AC Oil DA

#### Nuclear now and inevitable

Tirone 12 Jonathan, AP, “Nuclear Power Production Set to Grow Even After Japan Phase-Out (Vienna)”, 9/19, <http://www.northjersey.com/news/international/170334006_Nuclear_Power_Production_Set_to_Grow_Even_After_Japan_Phase-Out__Vienna_.html?page=all>

Nuclear power is set to grow over the next four decades even after Japan shuts down its reactor fleet, the International Atomic Energy Agency says. Global installed capacity is set to rise to at least 469 gigawatts of energy by 2050 from 370 GWe today, according to the IAEA's most pessimistic scenario. Nuclear capacity may reach as much as 1,137 GWe in a more favorable investment climate, the Vienna-based agency said. "We are a little bit more optimistic," said Holger Rogner, IAEA head of planning and economic studies, late Tuesday in the Austrian capital. "There is still a case for nuclear power." Japan has about 46 GWe of capacity at 50 reactors and plans to phase out nuclear power in the next three decades in response to the Fukushima Dai-ichi reactor meltdowns last year. The IAEA, established in 1957 to promote the peaceful uses of atomic power, sees growth driven by new reactor projects in China and in newcomer nations such as Turkey and the United Arab Emirates A gigawatt is equivalent to 1 billion watts of electricity. The driving forces that brought about the renaissance in nuclear power — growing demand in emerging economies, energy security, elevated fossil-fuel prices and climate pressures — haven't changed, Rogner said. The IAEA presented its findings to the organization's 155 members, meeting at their general conference in Vienna. "The feedback we receive is that there is no real retraction from most national power programs," Rogner said. "What we do see is that some newcomer states have a much better understanding for the need to get things right. Before Fukushima they were a little too optimistic how fast you can move forward the technology." Japan's new policy follows public pressure since the Fukushima disaster caused mass evacuations and left areas north of Tokyo uninhabitable for decades. Germany and Switzerland announced plans to phase out nuclear power after the meltdowns.

#### Low prices and high production inevitable – Saudi and demand

LeVine 12 Steve LeVine, writer for Foreign Policy, June 20, 2012, “Why oil prices are keeping Putin up at night”, http://oilandglory.foreignpolicy.com/posts/2012/06/20/why\_oil\_prices\_are\_keeping\_putin\_up\_at\_night

Citigroup's Morse thinks that prices can fall further from where they are now, but not as low as Verleger forecasts because, he told me, today's market conditions are different from 2008 -- the decline in demand is not as steep, and inventories are not as large. Morse calculates that Brent can fall into the $70s-per-barrel range and U.S.-traded oil into the $60s-a-barrel range. "**There is a good chance Saudi Arabia continues to produce enough to force [a rise in oil inventories]**. And there's a good chance, between Europe and China, that demand growth could come to a halt," Morse said. OPEC might respond by reducing production, **but its actions would be late**. "Add to the scenario no more supply disruptions (or only modest ones) and no military conflict involving Iran," Morse said, "and **prices could fall another $20 a barrel fairly easily**.

### AT: Prolif Impact

#### No impact to prolif

**Tepperman 9—**Deputy Editor at Newsweek. Frmr Deputy Managing Editor, Foreign Affairs. LLM, i-law, NYU. MA, jurisprudence, Oxford. (Jonathan, Why Obama Should Learn to Love the Bomb, http://jonathantepperman.com/Welcome\_files/nukes\_Final.pdf)

A growing and compelling body of research suggests that nuclear weapons may not, in fact, make the world more dangerous, as Obama and most people assume. The bomb may actually make us safer. In this era of rogue states and transnational terrorists, that idea sounds so obviously wrongheaded that few politicians or policymakers are willing to entertain it. But that’s a mistake. Knowing the truth about nukes would have a profound impact on government policy. Obama’s idealistic campaign, so out of character for a pragmatic administration, may be unlikely to get far (past presidents have tried and failed). But it’s not even clear he should make the effort. There are more important measures the U.S. government can and should take to make the real world safer, and these mustn’t be ignored in the name of a dreamy ideal (a nukefree planet) that’s both unrealistic and possibly undesirable. The argument that nuclear weapons can be agents of peace as well as destruction rests on two deceptively simple observations. First, nuclear weapons have not been used since 1945. Second, there’s never been a nuclear, or even a nonnuclear, war between two states that possess them. Just stop for a second and think about that: it’s hard to overstate how remarkable it is, especially given the singular viciousness of the 20th century. As Kenneth Waltz, the leading “nuclear optimist” and a professor emeritus of political science at UC Berkeley puts it, “We now have 64 years of experience since Hiroshima. It’s striking and against all historical precedent that for that substantial period, there has not been any war among nuclear states.” To understand why—and why the next 64 years are likely to play out the same way—you need to start by recognizing that all states are rational on some basic level. Their leaders may be stupid, petty, venal, even evil, but they tend to do things only when they’re pretty sure they can get away with them. Take war: a country will start a fight only when it’s almost certain it can get what it wants at an acceptable price. Not even Hitler or Saddam waged wars they didn’t think they could win. The problem historically has been that leaders often make the wrong gamble and underestimate the other side—and millions of innocents pay the price. Nuclear weapons change all that by making the costs of war obvious, inevitable, and unacceptable. Suddenly, when both sides have the ability to turn the other to ashes with the push of a button— and everybody knows it—the basic math shifts. Even the craziest tin-pot dictator is forced to accept that war with a nuclear state is unwinnable and thus not worth the effort. As Waltz puts it, “Why fight if you can’t win and might lose everything?” Why indeed? The iron logic of deterrence and mutually assured destruction is so compelling, it’s led to what’s known as the nuclear peace: the virtually unprecedented stretch since the end of World War II in which all the world’s major powers have avoided coming to blows. They did fight proxy wars, ranging from Korea to Vietnam to Angola to Latin America. But these never matched the furious destruction of full-on, great-power war (World War II alone was responsible for some 50 million to 70 million deaths). And since the end of the Cold War, such bloodshed has declined precipitously. Meanwhile, the nuclear powers have scrupulously avoided direct combat, and there’s very good reason to think they always will. There have been some near misses, but a close look at these cases is fundamentally reassuring—because in each instance, very different leaders all came to the same safe conclusion. Take the mother of all nuclear standoffs: the Cuban missile crisis. For 13 days in October 1962, the United States and the Soviet Union each threatened the other with destruction. But both countries soon stepped back from the brink when they recognized that a war would have meant curtains for everyone. As important as the fact that they did is the reason why: Soviet leader Nikita Khrushchev’s aide Fyodor Burlatsky said later on, “It is impossible to win a nuclear war, and both sides realized that, maybe for the first time.” The record since then shows the same pattern repeating: nucleararmed enemies slide toward war, then pull back, always for the same reasons. The best recent example is India and Pakistan, which fought three bloody wars after independence before acquiring their own nukes in 1998. Getting their hands on weapons of mass destruction didn’t do anything to lessen their animosity. But it did dramatically mellow their behavior. Since acquiring atomic weapons, the two sides have never fought another war, despite severe provocations (like Pakistani-based terrorist attacks on India in 2001 and 2008). They have skirmished once. But during that flare-up, in Kashmir in 1999, both countries were careful to keep the fighting limited and to avoid threatening the other’s vital interests. Sumit Ganguly, an Indiana University professor and coauthor of the forthcoming India, Pakistan, and the Bomb, has found that on both sides, officials’ thinking was strikingly similar to that of the Russians and Americans in 1962. The prospect of war brought Delhi and Islamabad face to face with a nuclear holocaust, and leaders in each country did what they had to do to avoid it. Nuclear pessimists—and there are many—insist that even if this pattern has held in the past, it’s crazy to rely on it in the future, for several reasons. The first is that today’s nuclear wannabes are so completely unhinged, you’d be mad to trust them with a bomb. Take the sybaritic Kim Jong Il, who’s never missed a chance to demonstrate his battiness, or Mahmoud Ahmadinejad, who has denied the Holocaust and promised the destruction of Israel, and who, according to some respected Middle East scholars, runs a messianic martyrdom cult that would welcome nuclear obliteration. These regimes are the ultimate rogues, the thinking goes —and there’s no deterring rogues. But are Kim and Ahmadinejad really scarier and crazier than were Stalin and Mao? It might look that way from Seoul or Tel Aviv, but **history says otherwise**. Khrushchev, remember, threatened to “bury” the United States, and in 1957, Mao blithely declared that a nuclear war with America wouldn’t be so bad because even “if half of mankind died . . . the whole world would become socialist.” Pyongyang and Tehran support terrorism—but so did Moscow and Beijing. And as for seeming suicidal, Michael Desch of the University of Notre Dame points out that Stalin and Mao are the real recordholders here: both were responsible for the deaths of some 20 million of their own citizens. Yet when push came to shove, their regimes balked at nuclear suicide, and so would today’s international bogeymen. For all of Ahmadinejad’s antics, his power is limited, and the clerical regime has always proved rational and pragmatic when its life is on the line. Revolutionary Iran has never started a war, has done deals with both Washington and Jerusalem, and sued for peace in its war with Iraq (which Saddam started) once it realized it couldn’t win. North Korea, meanwhile, is a tiny, impoverished, family-run country with a history of being invaded; its overwhelming preoccupation is survival, and every time it becomes more belligerent it reverses itself a few months later (witness last week, when Pyongyang told Seoul and Washington it was ready to return to the bargaining table). These countries may be brutally oppressive, but nothing in their behavior suggests they have a death wish.

### Space Col Add-On

#### SMRs solve colonization

O’Neil 11 – Ian, PhD from University of Wales, founder and editor of Astroengine, space producer for Discovery News, “'Suitcase' Nuclear Reactors to Power Mars Colonies,” August 30th, <http://news.discovery.com/space/mars-colonies-powered-by-mini-nuclear-reactors-110830.html>

Nuclear power is an emotive subject -- particularly in the wake of the Fukushima power plant disaster after Japan's March earthquake and tsunami -- but in space, it may be an essential component of spreading mankind beyond terrestrial shores. On Monday, at the 242nd National Meeting and Exposition of the American Chemical Society (ACS) in Denver, Colo., the future face of space nuclear power was described. You can forget the huge reactor buildings, cooling towers and hundreds of workers; the first nuclear reactors to be landed on alien worlds to support human settlement will be tiny. Think less "building sized" and more "suitcase sized." "People would never recognize the fission power system as a nuclear power reactor," said James E. Werner, lead of the Department of Energy's (DOE) Idaho National Laboratory. "The reactor itself may be about 1 feet wide by 2 feet high, about the size of a carry-on suitcase. There are no cooling towers. A fission power system is a compact, reliable, safe system that may be critical to the establishment of outposts or habitats on other planets. Fission power technology can be applied on Earth's Moon, on Mars, or wherever NASA sees the need for continuous power." The joint NASA/DOE project is aiming to build a demonstration unit next year. Obviously, this will be welcome news to Mars colonization advocates; to have a dependable power source on the Martian surface will be of paramount importance. The habitats will need to have a constant power supply simply to keep the occupants alive. This will be "climate control" on an unprecedented level. Water extraction, reclamation and recycling; food cultivation and storage; oxygen production and carbon dioxide scrubbing; lighting; hardware, tools and electronics; waste management -- these are a few of the basic systems that will need to be powered from the moment humans set foot on the Red Planet, 24 hours 39 minutes a day (or "sol" -- a Martian day), 669 sols a year. Fission reactors can provide that. However, nuclear fission reactors have had a very limited part to play in space exploration up until now. Russia has launched over 30 fission reactors, whereas the US has launched only one. All have been used to power satellites. Radioisotope thermoelectric generators (RTGs), on the other hand, have played a very important role in the exploration of the solar system since 1961. These are not fission reactors, which split uranium atoms to produce heat that can then be converted into electricity. RTGs depend on small pellets of the radioisotope plutonium-238 to produce a steady heat as they decay. NASA's Pluto New Horizons and Cassini Solstice missions are equipped with RTGs (not solar arrays) for all their power needs. The Mars Science Laboratory (MSL), to be launched in November 2011, is powered by RTGs for Mars roving day or night. RTGs are great, but to power a Mars base, fission reactors would be desirable because they deliver more energy. And although solar arrays will undoubtedly have a role to play, fission reactors will be the premier energy source for the immediate future. "The biggest difference between solar and nuclear reactors is that nuclear reactors can produce power in any environment," said Werner. "Fission power technology doesn't rely on sunlight, making it able to produce large, steady amounts of power at night or in harsh environments like those found on the Moon or Mars. A fission power system on the Moon could generate 40 kilowatts or more of electric power, approximately the same amount of energy needed to power eight houses on Earth." "The main point is that nuclear power has the ability to provide a power-rich environment to the astronauts or science packages anywhere in our solar system and that this technology is mature, affordable and safe to use." Of course, to make these "mini-nuclear reactors" a viable option for the first moon and Mars settlements, they'll need to be compact, lightweight and safe. Werner contends that once the technology is validated, we'll have one of the most versatile and affordable power resources to support manned exploration of the solar system.

#### Extinction

Austen 11| Citing the Lifeboat Foundation and the Alliance to Rescue Civilization (Ben, contributing editor of Harper’s Magazine, “After Earth: Why, Where, How, and When We Might Leave Our Home Planet,” popular science, http://www.popsci.com/science/article/2011-02/after-earth-why-where-how-and-when-we-might-leave-our-home-planet?page=3)

Earth won’t always be fit for occupation. We know that in two billion years or so, an expanding sun will boil away our oceans, leav[e]ing our home in the universe uninhabitable—unless, that is, we haven’t already been wiped out by the Andromeda galaxy, which is on a multibillion-year collision course with our Milky Way. Moreover, at least a third of the thousand mile-wide asteroids that hurtle across our orbital path will eventually crash into us, at a rate of about one every 300,000 years. Why? Indeed, in 1989 a far smaller asteroid, the impact of which would still have been equivalent in force to 1,000 nuclear bombs, crossed our orbit just six hours after Earth had passed. A recent report by the Lifeboat Foundation, whose hundreds of researchers track a dozen different existential risks to humanity, likens that one-in-300,000 chance of a catastrophic strike to a game of Russian roulette: “If we keep pulling the trigger long enough we’ll blow our head off, and there’s no guarantee it won’t be the next pull.” Many of the threats that might lead us to consider off-Earth living arrangements are actually man-made, and not necessarily in the distant future. The amount we consume each year already far outstrips what our planet can sustain, and the World Wildlife Fund estimates that by 2030 we will be consuming two planets’ worth of natural resources annually. The Center for Research on the Epidemiology of Disasters, an international humanitarian organization, reports that the onslaught of droughts, earthquakes, epic rains and floods over the past decade is triple the number from the 1980s and nearly 54 times that of 1901, when this data was first collected. Some scenarios have climate change leading to severe water shortages, the submersion of coastal areas, and widespread famine. Additionally, the world could end by way of deadly pathogen, nuclear war or, as the Lifeboat Foundation warns, the “misuse of increasingly powerful technologies.” Given the risks humans pose to the planet, we might also someday leave Earth simply to conserve it, with our planet becoming a kind of nature sanctuary that we visit now and again, as we might Yosemite. None of the threats we face are especially far-fetched. Climate change is already a major factor in human affairs, for instance, and our planet has undergone at least one previous mass extinction as a result of asteroid impact. “The dinosaurs died out because they were too stupid to build an adequate spacefaring civilization,” says Tihamer Toth-Fejel, a research engineer at the Advanced Information Systems division of defense contractor General Dynamics and one of 85 members of the Lifeboat Foundation’s space-settlement board. “So far, the difference between us and them is barely measurable.” The Alliance to Rescue Civilization, a project started by New York University chemist Robert Shapiro, contends that the inevitability of any of several cataclysmic events means that we must prepare a copy of our civilization and move it into outer space and out of harm’s way—a backup of our cultural achievements and traditions. In 2005, then–NASA administrator Michael Griffin described the aims of the national space program in similar terms. “If we humans want to survive for hundreds of thousands or millions of years, we must ultimately populate other planets,” he said. “One day, I don’t know when that day is, but there will be more human beings who live off the Earth than on it.

### 2AC Immigration DA

#### Obama’s strategy is to make sure immigration doesn’t pass

Munro 12-31 – Neil Munro, reporter for the Daily Caller, December 31st, 2012, "Obama promises new immigration plan but keeps endgame close to his vest" dailycaller.com/2012/12/31/obama-promises-new-immigration-plan-but-keeps-endgame-close-to-his-vest/?print=1

President Barack Obama promised Dec. 30 to introduce an immigration bill during 2013, but activists on all sides of the debate are trying to understand his strategy.¶ **He may be gunning for a victory in the mid-term elections by introducing** a bill so radical that it will **spark an emotional controversy from whites**, which would then **spur many angry Latino**s to vote Democratic in the 2014 midterm elections, said Robert de Posada, former head of a GOP-affiliated group, The Latino Coalition.¶ **“The word that I’ve heard from many, is [that** he will] submit a very, very liberal plan that most Republicans will not support, that most southern and moderate Democrats will not support**,”** he said.¶ When the bill fails**, “they can announce once again that they tried [and that Latinos] need to rally in the next election**,” said Posada, who helped President George W. Bush win 40 percent of the Latino vote in 2004, during the housing boom.

#### Won’t pass and not top of the docket

Munro 12-31 – Neil Munro, reporter for the Daily Caller, December 31st, 2012, "Obama promises new immigration plan but keeps endgame close to his vest" dailycaller.com/2012/12/31/obama-promises-new-immigration-plan-but-keeps-endgame-close-to-his-vest/?print=1

“**We don’t** quite **know what the White House is doing**,” he said.¶ Obama sketched his 2013 plans during a low-pressure interview on NBC’s “Meet the Press” Sunday.¶ “I’ve said that fixing our broken immigration system is a top priority,” he told interviewer David Gregory, who is now under police investigation for violating D.C. law by brandishing a 30-bullet magazine on his Dec. 23 show.¶ “I will introduce legislation in the first year to get that done,” Obama said.¶ “I think we have talked about it long enough. We know how we can fix it. We can do it in a comprehensive way that the American people support. That’s something we should get done.”¶ Gregory did not challenge any of Obama’s claims, nor did he question Obama about how his bill would impact the high unemployment rate among low-skilled Americans, especially African-Americans, in a an increasingly high-tech economy.¶ However, Obama’s language suggested that increased Latino immigration is a lower priority for him than other measures, and that he’s concerned **any** revamp would fail because of public opposition.¶ Many previous immigration reform bills have died when leading supporters quietly backed away amid furious public opposition to what was perceived as an attempt at a general amnesty. In 2007, then-Sen. Obama voted against a temporary-worker provision in a pending immigration bill, helping kill the overall legislation.¶ **During his first term as president, Obama declined to push a comprehensive immigration bill, despite promising such a revamp while on the 2008 campaign trail**.¶ In his NBC interview, Obama showed more enthusiasm about other priorities.¶ “We’ve got a huge opportunity around energy,” he said, “The most immediate thing I’ve got to do … is make sure that taxes are not going up on middle class families,” he claimed. Another priority, he added, is “rebuilding our infrastructure**, which is broken.”**¶ **Obama also touted his new project to counter gun-violence.** “Anybody who was up in Newtown, who talked to the parents, who talked to the families, understands that, you know, something fundamental in America has to change … you know, that was the worst day of my presidency,” he told Gregory.¶ “I will put forward a very specific [anti-violence] proposal based on the recommendations that Joe Biden’s task force is putting together as we speak,” he said.¶ De Posada argued that the House Speaker John Boehner should wait for Obama’s immigration bill before making a move on immigration. If it is too radical, he can force a vote and force Democratic legislators to vote for or against Obama’s bill.¶ During Bush’s term, for example, African-American Democrats kept a low profile on immigration, ensuring that the issue was not brought up for a vote in the House in 2007 and 2008.¶ **“A bunch of Democrats are not going to be supportive**,” de Posada predicted. That rejection would damage Obama’s standing among Latinos in the 2014 race, he said, and help GOP outreach.¶ De Posada said the GOP can win some sympathy among Latinos by pushing an ambitious bill that would welcome temporary migrant workers from across the United States’ southern border. In turn, that sympathy will ensure that Latinos actually listen to the GOP’s economic and social messages, he said.¶ However, various right-of-center immigration reformers are already trying to win passage of small-scale measures that don’t include a pathway to citizenship for illegal immigrants, or invitations to new migrant workers.¶ The small-scale bills can help American workers and high-tech employers, and also split the various ethnic, ideological and business groups now pushing for easier immigration, say the reform advocates.¶ A comprehensive bill “will not pass**, just as it didn’t last time around [and if Obama] were actually serious, he would agree to a piecemeal approach where each piece could garner sufficient support to pass**,” said Rosemary Jenks, director of government relations at NumbersUSA, an immigration-reform group.

#### Budget fights outweigh---consumes the first half of 2013

Helderman 1/1 Rosalind S, "After a 'fiscal cliff' deal, what next?", 2013, www.washingtonpost.com/politics/after-a-fiscal-cliff-deal-what-next/2012/12/31/b9d9a452-5384-11e2-bf3e-76c0a789346f\_story.html?wprss=rss\_politics

Assuming the deal is approved by the House, it will nevertheless give way to a nearly continuous series of fights that will consume the first part of the year, even as President Obama might hope to shift Congress’s attention to immigration reform and gun control.¶ “It’s become less like a fiscal cliffhanger and more like a journey over the fiscal mountains,” said Rep. Jeff Fortenberry (R-Neb.).¶ The next big deadline is likely to come around the end of February, when the Treasury Department will exhaust the measures now in place to extend the nation’s $16.4 trillion debt ceiling. At that point, the government will not be able to pay its bills unless Congress votes to raise the nation’s legal borrowing limit.¶ Republicans hope to use that moment to force Obama and congressional Democrats to agree to major spending cuts in return for the increase — in what could be a sequel to the contentious face-off over the debt limit in the summer of 2011.¶ Provided Monday’s deal is approved, in early March would come another deadline: the $110 billion cut in spending, half from the Pentagon, delayed as part of this deal.¶ A month or so later — on March 27 — a short-term measure that funds government agencies will lapse. Without a renewal, the government will shut down, setting up another possible showdown.¶ “Round two’s coming,” said Sen. Lindsey O. Graham (R-S.C.). “And we’re going to have one hell of a contest about the direction and the vision of this country.”¶ Many Republicans believe they’ll have more leverage then than they do now because the debate over tax rates on the wealthy will be settled.

#### Executive military action shields

Davenport 12 Coral, energy and environment correspondent for National Journal, Prior to joining National Journal in 2010, Davenport covered energy and environment for Politico, and before that, for Congressional Quarterly. In 2010, she was a fellow with the Metcalf Institute for Marine and Environmental Reporting. From 2001 to 2004, Davenport worked in Athens, Greece, as a correspondent for numerous publications, including the Christian Science Monitor and USA Today, covering politics, economics, international relations and terrorism in southeastern Europe. She also covered the 2004 Olympic Games in Athens, and was a contributing writer to the Fodor’s, Time Out, Eyewitness and Funseekers’ guidebook series. Davenport started her journalism career at the Daily Hampshire Gazette in Northampton, Massachusetts, after graduating from Smith College with a degree in English literature. National Journal, 2/10, White House Budget to Expand Clean-Energy Programs Through Pentagon, ProQuest

The White House believes it has figured out how to get more money for clean-energy programs touted by President Obama without having it become political roadkill in the wake of the Solyndra controversy: **Put it in the Pentagon**. While details are thin on the ground, lawmakers who work on both energy- and defense-spending policy believe the fiscal 2013 budget request to be delivered to Congress on Monday probably won't include big increases for wind and solar power through the Energy Department, a major target for Republicans since solar-panel maker Solyndra defaulted last year on a $535 million loan guarantee. But they do expect to see increases in spending on alternative energy in the Defense Department, such as programs to replace traditional jet fuel with biofuels, supply troops on the front lines with solar-powered electronic equipment, build hybrid-engine tanks and aircraft carriers, and increase renewable-energy use on military bases. While Republicans will instantly shoot down requests for fresh spending on Energy Department programs that could be likened to the one that funded Solyndra, many support alternative-energy programs for the military. "I do expect to see the spending," said Rep. Jack Kingston, R-Ga., a member of the House Defense Appropriations Subcommittee, when asked about increased investment in alternative-energy programs at the Pentagon. "I think in the past three to five years this has been going on, but that it has grown as a culture and a practice - and it's a good thing." "If Israel attacks Iran, and we have to go to war - and the Straits of Hormuz are closed for a week or a month and the price of fuel is going to be high," Kingston said, "the question is, in the military, what do you replace it with? It's not something you just do for the ozone. It's strategic." Sen. Lindsey Graham, R-S.C., who sits on both the Senate Armed Services Committee and the Defense Appropriations Subcommittee, said, "I don't see what they're doing in DOD as being Solyndra." "We're not talking about putting $500 million into a goofy idea," Graham told National Journal . "We're talking about taking applications of technologies that work and expanding them. I wouldn't be for DOD having a bunch of money to play around with renewable technologies that have no hope. But from what I understand, there are renewables out there that already work." A senior House Democrat noted that this wouldn't be the first time that the **Pentagon has been utilized to advance policies that wouldn't otherwise be supported**. "They did it in the '90s with medical research," said Rep. Henry Waxman, D-Calif., ranking member of the House Energy and Commerce Committee. In 1993, when funding was frozen for breast-cancer research programs in the National Institutes of Health, Congress boosted the Pentagon's budget for breast-cancer research - to more than double that of the health agency's funding in that area. **Politically, the strategy makes sense**. Republicans are ready to fire at the first sign of any pet Obama program, and renewable programs at the Energy Department are an exceptionally ripe target. That's because of Solyndra, but also because, in the last two years, the Energy Department received a massive $40 billion infusion in funding for clean-energy programs from the stimulus law, a signature Obama policy. When that money runs out this year, a request for more on top of it would be met with flat-out derision from most congressional Republicans. Increasing renewable-energy initiatives at the Pentagon can also help Obama advance his broader, national goals for transitioning the U.S. economy from fossil fuels to alternative sources. As the largest industrial consumer of energy in the world, the U.S. military can have a significant impact on energy markets - if it demands significant amounts of energy from alternative sources, it could help scale up production and ramp down prices for clean energy on the commercial market. Obama acknowledged those impacts in a speech last month at the Buckley Air Force Base in Colorado. "The Navy is going to purchase enough clean-energy capacity to power a quarter of a million homes a year. And it won't cost taxpayers a dime," Obama said. "What does it mean? It means that the world's largest consumer of energy - the Department of Defense - is making one of the largest commitments to clean energy in history," the president added. "That will grow this market, it will strengthen our energy security." Experts also hope that Pentagon engagement in clean-energy technology could help yield breakthroughs with commercial applications. Kingston acknowledged that the upfront costs for alternative fuels are higher than for conventional oil and gasoline. For example, the Air Force has pursued contracts to purchase biofuels made from algae and camelina, a grass-like plant, but those fuels can cost up to $150 a barrel, compared to oil, which is lately going for around $100 a barrel. Fuel-efficient hybrid tanks can cost $1 million more than conventional tanks - although in the long run they can help lessen the military's oil dependence, Kingston said Republicans recognize that the up-front cost can yield a payoff later. "It wouldn't be dead on arrival. But we'd need to see a two- to three-year payoff on the investment," Kingston said. Military officials - particularly Navy Secretary Ray Mabus, who has made alternative energy a cornerstone of his tenure - have been telling Congress for years that the military's dependence on fossil fuels puts the troops - and the nation's security - at risk. Mabus has focused on meeting an ambitious mandate from a 2007 law to supply 25 percent of the military's electricity from renewable power sources by 2025. (Obama has tried and failed to pass a similar national mandate.) Last June, the DOD rolled out its first department-wide energy policy to coalesce alternative and energy-efficient initiatives across the military services. In January, the department announced that a study of military installations in the western United States found four California desert bases suitable to produce enough solar energy - 7,000 megawatts - to match seven nuclear power plants. And so far, those **moves have met with approval from congressional Republicans**. Even so, any request for new Pentagon spending will be met with greater scrutiny this year. The Pentagon's budget is already under a microscope, due to $500 billion in automatic cuts to defense spending slated to take effect in 2013. But even with those challenges, clean-energy spending probably won't stand out as much in the military budget as it would in the Energy Department budget. Despite its name, the Energy Department has traditionally had little to do with energy policy - its chief portfolio is maintaining the nation's nuclear weapons arsenal. Without the stimulus money, last year only $1.9 billion of Energy's $32 billion budget went to clean-energy programs. A spending increase of just $1 billion would make a big difference in the agency's bottom line. But it would probably be easier to tuck another $1 billion or $2 billion on clean-energy spending into the Pentagon's $518 billion budget. Last year, the Pentagon spent about $1 billion on renewable energy and energy-efficiency programs across its departments.

#### Winners win

Marshall and Prins 11 (BRYAN W, Miami University and BRANDON C, University of Tennessee & Howard H. Baker, Jr. Center for Public Policy, “Power or Posturing? Policy Availability and Congressional Influence on U.S. Presidential Decisions to Use Force”, Sept, Presidential Studies Quarterly 41, no. 3)

Presidents rely heavily on Congress in converting their political capital into real policy success. Policy success not only shapes the reelection prospects of presidents, but it also builds the president’s reputation for political effectiveness and fuels the prospect for subsequent gains in political capital (Light 1982). Moreover, the president’s legislative success in foreign policy is correlated with success on the domestic front. On this point, some have largely disavowed the two-presidencies distinction while others have even argued that foreign policy has become a mere extension of domestic policy (Fleisher et al. 2000; Oldfield and Wildavsky 1989) Presidents implicitly understand that there exists a linkage between their actions in one policy area and their ability to affect another. The use of force is no exception; in promoting and protecting U.S. interests abroad, presidential decisions are made with an eye toward managing political capital at home (Fordham 2002).

#### Comprehensive reform fails – if it passes it has too many compromises that prevent solvency

Morrison 12-9 – Bruce Morrison, a former U.S. Representative from Connecticut, was the chairman of the House immigration subcommittee and the author of the Immigration Act of 1990. December 9th, 2012, "One Bill of Compromises Isn’t the Answer” www.nytimes.com/roomfordebate/2012/12/09/understanding-immigration-reform/one-immigration-bill-of-compromises-isnt-the-answer

To many, “comprehensive immigration reform” means “fix it and forget it.” But doing it all in one bill reprises what got us in the current mess in the first place. After major reform bills in 1986 and 1990, the failing employment verification scheme and the clogged green card process were allowed to go unattended. The “enforcement only” 1996 law only froze the mess in place.¶ Save the 'punishment' for those that do not comply with a system that works, not those ensnared in the current system that does not.¶ **A huge compromise of all competing immigration fixes larded into one bill will involve compromises that do not serve the nation’s interests.** Instead we need to assemble the votes to do the two things that must be done — a broad earned legalization program for the 11 million now illegally resident in the country in conjunction with the assurance that this problem will not happen again. That assurance will come from a universal, electronic, identity-authenticating screening of all workers to ensure that they are authorized to work in the U.S.¶ Because almost all who make unauthorized entries and overstays do so to seek and accept employment, no other tool will get the result we need to make legalization politically and philosophically justified — that we have fixed the source of the problem. And this also means using the employment relationship to roll-in legalization while rolling out universal verification.¶ The key point is that prevention of illegal presence is the goal. Save the “punishment” for those that do not comply with a system that works, not those ensnared in the current system that does not.¶ Our legal immigration system needs lots of fixing, like the increase of STEM green cards passed by the House last week and much more. But these fixes, including all future flows beyond the current one million annual immigrants and the millions who will be legalized, will get much easier to negotiate when the legalization-prevention barrier is removed.

#### SMR expansion solves growth

MSCR 11 US Department of Commerce International Trade Administration Manufacturing and Services Competitiveness Report, February 2011, “The Commercial Outlook for U.S. Small Modular Nuclear Reactors”, http://trade.gov/mas/ian/build/groups/public/@tg\_ian/@nuclear/documents/webcontent/tg\_ian\_003185.pdf

A primary advantage of SMRs is in their production. Their small size means that they do not need the ultra-heavy forged components that currently can be made only by Japan Steel Works and Doosan Heavy Industries in South Korea.7 In most of the current U.S. SMR designs, the reactor pressure vessels and other large forgings could be supplied by domestic vendors, which would create U.S. jobs and potential exports of SMR components to international customers. In addition, most SMR designs allow for factory manufacturing, which could potentially provide opportunities for cost savings, for increased quality, and for more efficient production. Those attributes mean that SMRs could be a significant source of economic growth in the United States.

## Add-Ons

### Space Col Add-On

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Earth won’t always be fit for occupation. We know that in two billion years or so, an expanding sun will boil away our oceans, leav[e]ing our home in the universe uninhabitable—unless, that is, we haven’t already been wiped out by the Andromeda galaxy, which is on a multibillion-year collision course with our Milky Way. Moreover, at least a third of the thousand mile-wide asteroids that hurtle across our orbital path will eventually crash into us, at a rate of about one every 300,000 years. Why? Indeed, in 1989 a far smaller asteroid, the impact of which would still have been equivalent in force to 1,000 nuclear bombs, crossed our orbit just six hours after Earth had passed. A recent report by the Lifeboat Foundation, whose hundreds of researchers track a dozen different existential risks to humanity, likens that one-in-300,000 chance of a catastrophic strike to a game of Russian roulette: “If we keep pulling the trigger long enough we’ll blow our head off, and there’s no guarantee it won’t be the next pull.” Many of the threats that might lead us to consider off-Earth living arrangements are actually man-made, and not necessarily in the distant future. The amount we consume each year already far outstrips what our planet can sustain, and the World Wildlife Fund estimates that by 2030 we will be consuming two planets’ worth of natural resources annually. The Center for Research on the Epidemiology of Disasters, an international humanitarian organization, reports that the onslaught of droughts, earthquakes, epic rains and floods over the past decade is triple the number from the 1980s and nearly 54 times that of 1901, when this data was first collected. Some scenarios have climate change leading to severe water shortages, the submersion of coastal areas, and widespread famine. Additionally, the world could end by way of deadly pathogen, nuclear war or, as the Lifeboat Foundation warns, the “misuse of increasingly powerful technologies.” Given the risks humans pose to the planet, we might also someday leave Earth simply to conserve it, with our planet becoming a kind of nature sanctuary that we visit now and again, as we might Yosemite. None of the threats we face are especially far-fetched. Climate change is already a major factor in human affairs, for instance, and our planet has undergone at least one previous mass extinction as a result of asteroid impact. “The dinosaurs died out because they were too stupid to build an adequate spacefaring civilization,” says Tihamer Toth-Fejel, a research engineer at the Advanced Information Systems division of defense contractor General Dynamics and one of 85 members of the Lifeboat Foundation’s space-settlement board. “So far, the difference between us and them is barely measurable.” The Alliance to Rescue Civilization, a project started by New York University chemist Robert Shapiro, contends that the inevitability of any of several cataclysmic events means that we must prepare a copy of our civilization and move it into outer space and out of harm’s way—a backup of our cultural achievements and traditions. In 2005, then–NASA administrator Michael Griffin described the aims of the national space program in similar terms. “If we humans want to survive for hundreds of thousands or millions of years, we must ultimately populate other planets,” he said. “One day, I don’t know when that day is, but there will be more human beings who live off the Earth than on it.

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## Case

### Colonization Possible

#### Colonization possible

Tash 2J.S., NASA Exploration Systems Mission Directorate Education Outreach writer, “Will Space Travel Affect Reproduction?”, [http://weboflife.nasa.gov/currentResearch/currentResearchFli ght/seaUrchin.htm](http://weboflife.nasa.gov/currentResearch/currentResearchFli%20ght/seaUrchin.htm), June

Colonizing other planets and living and working in space for entire lifetimes were once the stuff of science fiction, but these days spaceflight itself has become somewhat routine, and space stations (Skylab, Russia's Mir, and recently the International Space Station) have provided people with the opportunity to live and work in space for extended periods of time. People now speculate that the ability to explore and colonize other planets is simply a matter of time. But some practical issues that go with traveling to and inhabiting other planets must still be addressed. One of the most fundamental biological questions posed by space travel is that of the effects of microgravity on reproduction. Sperm and Serendipity In the course of a literature search pertaining to his research in the field of male reproductive issues and male contraceptives, NASA Principal Investigator Joseph Tash, of the University of Kansas Medical Center, came upon a paper by Ute Engelmann, of Medical Consulting in Munich, Germany, and her co-investigators. The paper described experimental results in which bull sperm motility was increased when subjected to freefall. Tash's discovery of the Engelmann article coincided with a NASA announcement seeking research proposals for studying the effects of microgravity on the ability of species to reproduce, and Tash believed that his own research would benefit from a microgravity environment, so he submitted a research proposal. Tash was interested in signal transduction, the process by which sperm are "told" to travel toward and fertilize an egg. He says, "We proposed to examine whether the signal transduction associated with the activation of sperm, and also the signaling that occurs in the sperm in association with signaling from the egg, were altered under the effects of microgravity." The proposal was selected for further ground-based studies and subsequently for flight studies. Sperm vs. Eggs Tash and his co-investigators chose to study sperm not only because that was where Tash's initial research interest lay, but also because sperm are very easy to collect, store, and study without affecting their function. With eggs, it's difficult to assess possible changes in their function resulting from the effects of microgravity without first fertilizing them. Notes Tash, "With sperm, you don't have to do that in order to get a good idea of whether they're working or not." Sperm cells are considered to be terminally differentiated cells. They have just two functions: moving, and fertilizing the egg. Fertilization is not possible without sperm movement, so studying the fundamental ability of sperm cells to move is a relatively simple way of assessing sperm functionality. For his research, Tash chose to use sea urchin sperm because the sperm are more uniform than sperm obtained from humans or other mammals, but their function and mode of movement are very similar to those of sperm from higher species. Tash notes that sea urchins are a long-standing, widely used model for studying the biology of fertilization. Common genetic origins, or homologies, between the sea urchin system and mammalian systems make the sea urchin a good model for obtaining basic information that can point to important questions to be addressed by studying mammalian systems. Sea urchin sperm also provide the added benefit of survivability - they are able to tolerate delays that sometimes occur with flight research. First Steps To send the sperm into space, Tash and his co-investigators used the European Space Agency's (ESA's) Biorack facility, a multiuser biological research facility originally designed for shuttle missions. The investigators were supplied with the hardware a year ahead of time. They used this period to demonstrate that the hardware itself did not affect the outcome of their studies and that they could ask and answer the questions they wanted to before the experiment was manifested. "I think that's a real critical component of why we were so successful," says Tash. A key aspect of the experiment was that the sperm were not in an active state - that is, they were not moving - when they were sent into orbit aboard the space shuttle. During fertilization in sea urchins, activation of the sperm occurs in less than a minute. Sperm are activated by a chemical process called phosphorylation, which sets off reactions within the sperm cells that start them swimming toward an egg. A separate chemical process stops sperm movement. During their preflight experiments, the researchers proved that the sperm could be collected and maintained in an inactive state for at least 20 hours before launch until the beginning of the experiment, which occurred a minimum of 20 hours after launch. This preflight research involved developing new technology for sperm storage, which led to a patent for the team. The researchers have been able to adapt the technology for sperm from different species, and they hope that the technology will find application in the agriculture industry, specifically for the collection, storage, and transport of semen for use in breeding, such as when a farmer wishes to breed his cattle to a bull that is located in another part of the country. A Moving Experience The experiment involved looking at specific proteins associated with sperm motility. Sperm were held in chambers in the Biorack; each chamber held experiment hardware for six samples of sperm, and there were two chambers for each of the time points at which the sperm were examined (0, 30, and 60 seconds). Once the sperm were activated by the introduction of seawater, their movement was stopped at either 30 seconds or 60 seconds. The researchers were then able to use antibodies to compare how the proteins associated with motility changed at each of the time points. "During our ground-based studies we found that two key sets of proteins, called FP 130 and FP 160, were likely associated with dynein, the main motor protein that is responsible for sperm tail movement," explains Tash, referring to a paper he published in Biochemical and Biophysical Research Communications in 1998 (see below for full reference). "These proteins are phosphorylated [a phosphorous group is attached to them] during activation of sperm, which starts the whole chemical cascade within the sperm cell that leads to onset of motility. Under microgravity conditions, the phosphorylation of FP 130 and FP 160 occurred much more rapidly than it did under normal-gravity conditions," says Tash. This result is consistent with those obtained from the earlier sounding rocket experiments conducted by Engelmann. The researchers learned that the sperm will begin to move sooner and will move more rapidly in space than they will on Earth,

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### DTN – Exists Now

#### Military already using DTN---not sufficient

**Jonson et al '8** -- Jonah Pezeshki, Victor Chao, Kristofer Smith, James Fazio, Booz Allen Hamilton @ IEEE, "APPLICATION OF DELAY TOLERANT NETWORKING (DTN) IN AIRBORNE NETWORKS," http://202.194.20.8/proc/milcom08/milcom08/pdfs/1211.pdf, RG)

The Marine Corps is already utilizing DTN technology within their Command and Control On-themove Network Digital Over-the-horizon Relay (CONDOR) project [13]. While early in development, this effort equips mobile land vehicles (HMMWVs) with a prototype payload of equipment to store traffic and relay it over available links using DTN bundling technology. Three types of CONDOR vehicles are defined: a Gateway, Point of Presence and Jump C2 vehicle. The Gateway vehicle is used to extend communications by bridging the Enhanced Position and Location Reporting System (EPLRS) networks with a satellite. The Point of Presence vehicle connects older technology radios to the EPLRS or satellite systems by acting as a translator and repeater. The Jump C2 vehicle acts as a mobile command post by keeping continuous satellite communications and connecting nearby command vehicles using wireless technology. A mobile Cisco router is augmented with a linuxbased computer to support the DTN bundle layer protocol based on the DTNRG. The primary means of data communication between the HMMWV and the Tactical Operations Center (TOC) is the EPLRS, which has a LoS limitation. When the HMMWV travels beyond LoS and loses connectivity, an operator can manually switch communications to a satellite link. During this manual adjustment, traffic is stored at the router and, once satellite communications have been established, is forwarded along. The DTN bundling can also be used if the satellite link is temporarily blocked by terrain or urban buildings. In this implementation a Space Communication Protocol Standard Transport Protocol (SCPS-TP) performance enhancing proxy (PEP) is also implemented to improve the performance of the satellite link.

### DTN – Long Solvo TF

**DTN takes a while to implement**

**Jonson et al '8** -- Jonah Pezeshki, Victor Chao, Kristofer Smith, James Fazio, Booz Allen Hamilton @ IEEE, "APPLICATION OF DELAY TOLERANT NETWORKING (DTN) IN AIRBORNE NETWORKS," http://202.194.20.8/proc/milcom08/milcom08/pdfs/1211.pdf, RG)

While DTNs are a promising solution to most of the current AN considerations, **significant work must still be done prior to widespread deployment**. Specifically, steps must be taken to ensure that the deployed network operates well within a single classification level, and that the addition of store and forward routing does not adversely affect network performance. Also, given that the National Security Agency (NSA) will likely require data-at-rest protection mechanisms to be employed, local storage devices (used to support the store-and-forward functionality) must be developed so that a compromised device cannot be tampered with (i.e. will not allow unauthorized access to stored data). Since ANs are currently deployed, special consideration must be given to an implementation plan to integrate DTN. This integration plan must enable the transition to DTN over AN, without substantially disrupting currently deployed AN services. In addition, since some traffic types (e.g. VOIP) cannot be used reliably over DTN, this DTN over AN implementation must allow some applications to be capable of bypassing the DTN overlay.

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### No Commercialization

#### DOD energy projects don’t trickle down

Reitenbach 12 Dr. Gail, POWER's Managing Editor, "The U.S. Military Gets Smart Grid", January 1, www.powermag.com/smart\_grid/The-U-S-Military-Gets-Smart-Grid\_4228\_p3.html

There should be no question about the importance of more self-reliant, sophisticated, and flexible power grids for the military. However, the trickle-down benefits of DOD smart grid technology pilots for non-military electricity customers—in terms of new technologies and lower prices—may be limited.¶ To take a small example, the EVs currently being developed for the military are custom builds (as so much is for the military) by a new entrant, which suggests that the likely tech transfer between REV and the dozens of mainstream "legacy" automakers with better consumer brand awareness could be minimal. What could transfer to the civilian grid from V2G pilots is a better understanding of how to handle the distribution-level technical issues involved in using EV-stored energy to provide grid-balancing ancillary services. The regulatory and economic aspects of that transaction would be another matter. ¶ Other energy storage technologies developed for military applications may not translate quickly into civilian life because of cost constraints, whereas the military's primary reason for deploying energy storage is security rather than least cost. Over time, however, we can hope that experience gained in military applications leads to cheaper technologies.¶ Another limiting factor is that even for technologies that work technically, working practically can mean different things in military and civilian contexts. Microgrids, for example, are likely to remain relegated to energy users who put a premium on reliable power supply—including various types of industrial, corporate, and educational campuses. ¶ Though the size of military renewable generation installations is smaller than most utility-scale projects beyond base gates, military microgrid projects may provide valuable lessons about balancing renewable and fossil-fueled generation sources. They could also accelerate greater deployment of distributed renewable generation, something that at least one leading utility CEO, NRG Energy Inc.'s David Crane, already has his eye on. According to an interview with Yale Environment 360, "The electricity future, says Crane, will be transformed by the widespread adoption of three innovations: solar panels on residential and commercial roofs, electric cars in garages, and truly 'smart meters' that will seamlessly transfer power to and from homes, electric vehicles, and the grid."

#### Military energy programs won’t be commercialized

Erwin 12 Sandra, National Defense Business and Technology Magazine, "Pentagon's Influence in Green Energy Innovation Overestimated, Study Says", 2012, www.nationaldefensemagazine.org/blog/lists/posts/post.aspx?ID=728

A new study casts doubts on the Defense Department’s ability to shape the nation’s clean-energy future.¶ The Pentagon three years ago launched an ambitious campaign to replace fossil fuels with renewables, reduce overall consumption of petroleum products and convert aging facilities into carbon-neutral buildings. Defense officials have touted these efforts as key to easing dependence on foreign oil imports and to lessen battlefield casualties from enemy attacks on fuel supplies. Administration officials, lawmakers and think tanks have praised the Pentagon’s green-technology push as a potential catalyst for a larger national effort to become more energy independent.¶ But in a study released March 28, a group of researchers and policy analysts concludes that there are today “significant limitations upon the scope and scale of the Defense Department’s likely influence on technological advance that can contribute to the nation’s energy infrastructure as a whole.”¶ The report, titled, "Energy Innovation at the Department of Defense: Assessing the Opportunities," was produced by the Consortium of Science, Policy and Outcomes at Arizona State University and the nonprofit Clean Air Task Force. The Washington, D.C.-based Bipartisan Policy Center was the primary sponsor of the study.¶ "The Pentagon is unlikely to become an all-purpose hub for advancing clean-energy technologies, because its energy innovation activities will be sustainable only where they can support the nation’s defense capabilities," says the report. "Many technologies that are of great importance to improving the environment, such as carbon-free central station generation, may not easily fit with DoD’s mission."¶ The United States should capitalize on energy-related investments made by the Defense Department, the study says, but cautions that the biggest challenge for advocates of military-led energy innovation is to delineate a path forward for green projects that are linked to a national strategy of reducing dependence on fossil fuels. ¶ A case in point is the Defense Department’s enthusiasm for biofuels. Both the Navy and the Air Force are investing hundreds of millions of dollars to test alternative fuel mixes in several types of ships and aircraft. But in the absence of a national plan to integrate biofuels into the civilian economy, the Pentagon finds itself as the proverbial tail trying to wag the dog. In recent months, Republican lawmakers have disparaged Defense Department biofuel programs as wasteful and disconnected from military needs.¶ The Pentagon’s contributions to energy innovation must reflect U.S. military mission needs, the study says. “Otherwise the incentives will be too weak.” The authors cite the example of the U.S. Air Force’s initial reluctance to embrace pilotless aircraft. “Yet the operational logic of unmanned aircraft has proven too strong to resist. … The lesson for energy-climate innovation is straightforward: mission- critical technologies will get commitment and support; others may not.”¶ There are reasons to question how much, or how easily, the Defense Department’s innovation capacity can or will be applied to the energy challenges that are most relevant to U.S. environmental goals, the study says. “DoD offers important institutional lessons, and models for innovation driven by the defense mission — but lessons and models that may not always translate easily to the energy context. … The department [which accounts for less than 2 percent of U.S. fuel consumption] is unlikely to become an all-purpose engine of energy innovation.”¶ The extent to which Pentagon-funded technologies have the potential to catalyze innovation relevant to large-scale reduction of global greenhouse gas emissions remains to be seen, the study says. “An important open question in this regard is the degree to which DoD will see zero carbon base load energy generation for its fixed installations as an area worthy of investments.”¶ The authors praise the Defense Department’s achievements in advancing energy innovation. These projects should continue, the study says, “but we must also be realistic in our expectations for the ultimate outcome of these efforts, unless greater attempts are made to consciously align DoD’s efforts with larger national goals and resources.”