# 1AC App state Round 6, vs Louisville LR 1NC-Alliance methodology, video projector

### Plan

#### Plan: The United States Department of Defense should procure small modular reactors for use on military bases within the United States.

### Advantage 1 is islanding.

#### Current DOD efforts at getting off the grid fail because of lack of coordination.

GAO ‘09

(Government Accountability Office, “Defense Critical Infrastructure:” <http://www.gao.gov/assets/300/297169.html>, SEH)

**DOD's** most critical assets are vulnerable to disruptions in electrical ¶ power supplies, but DOD lacks sufficient information to determine the ¶ full extent of the risks and vulnerabilities these assets face. **All** 34 ¶ **of these most critical assets require electricity continuously to** ¶ **support their military missions**, and 31 of them rely on commercial ¶ power grids--which the Defense Science Board Task Force on DOD Energy ¶ Strategy has characterized as increasingly fragile and vulnerable--as ¶ their primary source of electricity. DOD Instruction 3020.45 requires ¶ DOD to conduct vulnerability assessments on all its most critical ¶ assets at least once every 3 years. Also, ASD(HD&ASA) has requested the ¶ U.S. Army Corps of Engineers--which serves as the Defense Critical ¶ Infrastructure Program's Defense Infrastructure Sector Lead Agent for ¶ Public Works--to conduct preliminary technical analyses of DOD ¶ installation infrastructure (including electrical power infrastructure) ¶ to support the teams conducting Defense Critical Infrastructure Program ¶ vulnerability assessments on the most critical assets. ¶ \* As of June 2009, and according to ASD(HD&ASA) and the Joint Staff, ¶ DOD had conducted Defense Critical Infrastructure Program vulnerability ¶ assessments on 14 of the 34 most critical assets.[Footnote 18] **DOD has** ¶ **not conducted the remaining assessments** because it did not identify the ¶ most critical assets until October 2008. To comply with the ¶ instruction, DOD would have to complete Defense Critical Infrastructure ¶ Program vulnerability assessments on all most critical assets by ¶ October 2011. ¶ \* **DOD has neither conducted, nor developed additional guidelines and** ¶ **time frames for conducting, these vulnerability assessments on any of** ¶ **the five non-DOD-owned most critical assets located in the United** ¶ **States or foreign countries,** citing security concerns and political ¶ sensitivities. ¶ \* **The U.S. Army Corps of Engineers has not completed the preliminary** ¶ **technical analyses requested because it has not yet received** ¶ **infrastructure-related information regarding the networks, assets,** ¶ **points of service, and inter-and intradependencies related to** ¶ **electrical power systems that it requires from the military services.** ¶ \* **Although DOD is in the process of developing guidelines, it does not** ¶ **systematically coordinate Defense Critical Infrastructure Program** ¶ **vulnerability assessment processes and guidelines with those of other,** ¶ **complementary DOD mission assurance programs--including force** ¶ **protection; antiterrorism; information assurance; continuity of** ¶ **operations; chemical, biological, radiological, nuclear, and high-** ¶ **explosive defense; readiness; and installation preparedness**--that also ¶ examine electrical power vulnerabilities of the most critical assets, ¶ because DOD has not established specific guidelines for such systematic ¶ coordination. ¶ \* The 10 Defense Critical Infrastructure Program vulnerability ¶ assessments we reviewed did not explicitly consider assets' ¶ vulnerabilities to longer-term (i.e., of up to several weeks' duration) ¶ electrical power disruptions[Footnote 19] on a mission-specific basis, ¶ as DOD has not developed explicit Defense Critical Infrastructure ¶ Program benchmarks for assessing electrical power vulnerabilities ¶ associated with longer-term electrical power disruptions. ¶ With more comprehensive knowledge of the most critical assets' risks ¶ and vulnerabilities to electrical power disruptions, DOD can better ¶ avoid compromising crucial DOD-wide missions during electrical power ¶ disruptions. This additional information may also improve DOD's ability ¶ to effectively prioritize funding needed to address identified risks ¶ and vulnerabilities of its most critical assets to electrical power ¶ disruptions. ¶ **While DOD has taken some steps toward assuring the availability of its** ¶ **electrical power supplies to its most critical assets, it lacks a** ¶ **mechanism for tracking the implementation of future Defense Critical** ¶ **Infrastructure Program risk management decisions and responses, and its** ¶ **coordination with local electricity providers has been limited**. From ¶ August 2005 through October 2008, DOD issued Defense Critical ¶ Infrastructure Program guidance for identifying critical assets, ¶ assessing their vulnerabilities, and making risk management decisions ¶ about those vulnerabilities. In addition, DOD has conducted various ¶ types of vulnerability assessments--including Defense Critical ¶ Infrastructure Program vulnerability assessments, Joint Staff ¶ Integrated Vulnerability Assessments, and other mission assurance- ¶ related assessments--on 24 of the most critical assets, including ¶ multiple assessments on some of the same assets. According to the ¶ survey, these Defense Critical Infrastructure Program and other DOD ¶ vulnerability assessments have identified various electrical power ¶ vulnerabilities for 10 of the assets. DOD has also coordinated with ¶ other federal agencies--including DHS, DOE, and the Federal Energy ¶ Regulatory Commission--and industry organizations in an effort intended ¶ to assure the availability of electrical power supplies to the most ¶ critical assets. **However, ASD(**HD&ASA)--which has responsibility for ¶ overseeing the implementation of actions for the remediation, ¶ mitigation, or acceptance of risks to DOD critical assets--**has not yet** ¶ **developed a mechanism to track the implementation of future Defense** ¶ **Critical Infrastructure Program risk management decisions, along with** ¶ **responses intended to address risks and vulnerabilities identified for** ¶ **the most critical assets. Without such information, DOD cannot** ¶ **comprehensively determine whether asset owners are taking the necessary** ¶ **steps to address identified risks and vulnerabilities of all of the** ¶ **most critical assets to electrical power disruptions**. In addition, ¶ Defense Critical Infrastructure Program guidance encourages ¶ coordination between DOD installations with critical assets and their ¶ respective public utilities, including electricity providers, in order ¶ to remediate risks involving those utilities--for example, by ¶ discussing potential changes in service agreements with those ¶ utilities. However, according to our survey results, such coordination ¶ with local electricity providers has occurred for only 7 of DOD's 34 ¶ most critical assets. As a result, DOD may not be taking advantage of ¶ available expertise on electrical power issues from such providers. ¶ **Without increased coordination between more DOD installations with** ¶ **critical assets and their respective local electricity providers, DOD** ¶ **potentially limits the risk mitigation or remediation options available** ¶ **to it for addressing the vulnerabilities of its most critical assets to** ¶ **electrical power disruptions.**

#### Grid disruptions are inevitable- only SMR’s can solve

Robitaille 12

(George, Department of Army Civilian, United States Army War College, “Small Modular Reactors: The Army’s Secure Source of Energy?” 21-03-2012, Strategy Research Project)

In recent years, the U.S Department of Defense (DoD) has identified a security issue at our installations related to the dependence on the civilian electrical grid. 1 The DoD depends on a steady source of electricity at military facilities to perform the functions that secure our nation. The flow of electricity into military facilities is controlled by a public grid system that is susceptible to being compromised because of the age of the infrastructure, damage from natural disasters and the potential for cyber attacks. Although most major functions at military installations employ diesel powered generators as temporary backup, the public grid may not be available to provide electricity when it is needed the most. The United States electrical infrastructure system is prone to failures and susceptible to terrorist attacks. 2 It is critical that the source of electricity for our installations is reliable and secure. In order to ensure that our military facilities possess a secure source of electricity, either the public system of electric generation and distribution is upgraded to increase its reliability as well as reducing its susceptibility to cyber attack or another source of electricity should be pursued. Although significant investments are being made to upgrade the electric grid, the current investment levels are not keeping up with the aging system. Small modular reactors (SMRs) are nuclear reactors that are about an order of magnitude smaller than traditional commercial reactor used in the United States. SMRs are capable of generating electricity and at the same time, they are not a significant contributor to global warming because of green house gas emissions. The DoD needs to look at small modular nuclear reactors (SMRs) to determine if they can provide a safe and secure source of electricity. Electrical Grid Susceptibility to Disruptions According to a recent report by the Defense Science Board, the DoD gets ninety nine percent of their electrical requirements from the civilian electric grid. 3 The electric grid, as it is currently configured and envisioned to operate for the foreseeable future, may not be reliable enough to ensure an uninterrupted flow of electricity for our critical military facilities given the influences of the aging infrastructure, its susceptibility to severe weather events, and the potential for cyber attacks. The DoD dependency on the grid is reflected in the $4.01 Billion spent on facilities energy in fiscal year 2010, the latest year which data was available. 4 The electricity used by military installations amounts to $3.76 billion. 5 As stated earlier, the DoD relies on the commercial grid to provide a secure source of energy to support the operations that ensure the security of our nation and it may not be available when we need it. The system could be taken down for extended periods of time by failure of aging components, acts of nature, or intentionally by cyber attacks. Aging Infrastructure. The U.S electric power grid is made up of independently owned power plants and transmission lines. The political and environmental resistance to building new electric generating power plants combined with the rise in consumption and aging infrastructure increases the potential for grid failure in the future. There are components in the U.S. electric grid that are over one hundred years old and some of the recent outages such as the 2006 New York blackout can be directly attributed to this out of date, aging infrastructure. 6 Many of the components of this system are at or exceeding their operational life and the general trend of the utility companies is to not replace power lines and other equipment until they fail. 7 The government led deregulation of the electric utility industry that started in the mid 1970s has contributed to a three decade long deterioration of the electric grid and an increased state of instability. Although significant investments are being made to upgrade the electric grid, the many years of prior neglect will require a considerable amount of time and funding to bring the aging infrastructure up to date. Furthermore, the current investment levels to upgrade the grid are not keeping up with the aging system. 8 In addition, upgrades to the digital infrastructure which were done to increase the systems efficiency and reliability, have actually made the system more susceptible to cyber attacks. 9 Because of the aging infrastructure and the impacts related to weather, the extent, as well as frequency of failures is expected to increase in the future. Adverse Weather. According to a 2008 grid reliability report by the Edison Electric Institute, sixty seven per cent of all power outages are related to weather. Specifically, lightning contributed six percent, while adverse weather provided thirty one percent and vegetation thirty percent (which was predominantly attributed to wind blowing vegetation into contact with utility lines) of the power outages. 10 In 1998 a falling tree limb damaged a transformer near the Bonneville Dam in Oregon, causing a cascade of related black-outs across eight western states. 11 In August of 2003 the lights went out in the biggest blackout in North America, plunging over fifty million people into darkness over eight states and two Canadian provinces. Most areas did not have power restored four or five days. In addition, drinking water had to be distributed by the National Guard when water pumping stations and/or purification processes failed. The estimated economic losses associated with this incident were about five billion dollars. Furthermore, this incident also affected the operations of twenty two nuclear plants in the United States and Canada. 12 In 2008, Hurricane Ike caused approximately seven and a half million customers to lose power in the United States from Texas to New York. 13 The electric grid suffered numerous power outages every year throughout the United States and the number of outages is expected to increase as the infrastructure ages without sufficient upgrades and weather-related impacts continue to become more frequent. Cyber Attacks. The civilian grid is made up of three unique electric networks which cover the East, West and Texas with approximately one hundred eighty seven thousand miles of power lines. There are several weaknesses in the electrical distribution infrastructure system that could compromise the flow of electricity to military facilities. The flow of energy in the network lines as well as the main distribution hubs has become totally dependent on computers and internet-based communications. Although the digital infrastructure makes the grid more efficient, it also makes it more susceptible to cyber attacks. Admiral Mr. Dennis C. Blair (ret.), the former Director of National Intelligence, testified before Congress that “the growing connectivity between information systems, the Internet, and other infrastructures creates opportunities for attackers to disrupt telecommunications, electrical power, energy pipelines, refineries, financial networks, and other critical infrastructures. 14 ” The Intelligence Community assesses that a number of nations already have the technical capability to conduct such attacks. 15 In the 2009 report, Annual Threat Assessment of the Intelligence Community for the Senate Armed Services Committee, Adm. Blair stated that “Threats to cyberspace pose one of the most serious economic and national security challenges of the 21st Century for the United States and our allies.”16 In addition, the report highlights a growing array of state and non-state actors that are targeting the U.S. critical infrastructure for the purpose of creating chaos that will subsequently produce detrimental effects on citizens, commerce, and government operations. These actors have the ability to compromise, steal, change, or completely destroy information through their detrimental activities on the internet. 17 In January 2008, US Central Intelligence Agency senior analyst Tom Donahue told a gathering of three hundred international security managers from electric, water, oil & gas, and other critical industry, that data was available from multiple regions outside the United States, which documents cyber intrusions into utilities. In at least one case (outside the U.S.), the disruption caused a power outage affecting multiple cities. Mr. Donahue did not specify who executed these attacks or why, but did state that all the intrusions were conducted via the Internet. 18 During the past twenty years, advances in computer technologies have permeated and advanced all aspects of our lives. Although the digital infrastructure is being increasingly merged with the power grid to make it more efficient and reliable, it also makes it more vulnerable to cyber attack. In October 2006, a foreign hacker invaded the Harrisburg, PA., water filtration system and planted malware. 19 In June 2008, the Hatch nuclear power plant in Georgia shut down for two days after an engineer loaded a software update for a business network that also rebooted the plant's power control system. In April 2009, The Wall Street Journal reported that cyber spies had infiltrated the U.S. electric grid and left behind software that could be used to disrupt the system. The hackers came from China, Russia and other nations and were on a “fishing expedition” to map out the system. 20 According to the secretary of Homeland Security, Janet Napolitano at an event on 28 October 2011, cyber–attacks have come close to compromising the country’s critical infrastructure on multiple occasions. 21 Furthermore, during FY11, the United States Computer Emergency Readiness Team took action on more than one hundred thousand incident reports by releasing more than five thousand actionable cyber security alerts and information products. 22 The interdependence of modern infrastructures and digital based systems makes any cyber attacks on the U.S. electric grid potentially significant. The December 2008 report by the Commission on Cyber Security for the forty fourth Presidency states the challenge plainly: “America’s failure to protect cyberspace is one of the most urgent national security problems facing the new administration”. 23 The susceptibility of the grid to being compromised has resulted in a significant amount of resources being allocated to ensuring the systems security. Although a substantial amount of resources are dedicated to protecting the nation’s infrastructure, it may not be enough to ensure the continuous flow of electricity to our critical military facilities. SMRs as they are currently envisioned may be able to provide a secure and independent alternative source of electricity in the event that the public grid is compromised. SMRs may also provide additional DoD benefit by supporting the recent government initiatives related to energy consumption and by circumventing the adverse ramifications associated with building coal or natural gas fired power plants on the environment.

reports over the same period the previous year.

#### Grid outage risks terrorism - takes out surveillance

Defense Science Board ‘08

(The DSB is a Federal ¶ Advisory Committee established to provide independent advice to the Secretary of ¶ Defense, “More Fight – Less Fuel” <http://www.acq.osd.mil/dsb/reports/ADA477619.pdf>, SEH)

**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.** About 85% of the energy infrastructure upon which DoD ¶ depends is commercially owned, **and 99% of the electrical energy DoD installations** ¶ **consume originates outside the fence.**¶ 3¶ As noted below, however, the grid 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. ¶ 2.3.1 State of the Grid ¶ The U.S.-Canadian electric grid is very efficient and cost effective but its design metric ¶ is efficiency more than resiliency. As a consequence, it is vulnerable to natural disaster or deliberate attack. The Task Force received several briefings from the Mission ¶ Assurance Division at Dahlgren (MAD), the Department of Energy and the utility ¶ industry. Based on these briefings, the Task Force is concerned about the condition of ¶ the grid and the ability to effect timely repairs. ¶ This concern extends not only to the complete dependency of critical national security ¶ missions on the grid, but also to its centrality to all facets of the nation’s economic life. ¶ To appreciate the seriousness of the impacts of an extended disruption, consider the ¶ 2003 Northeast blackout. At around 4:15pm EST on August 14, 2003 about 50 million ¶ people living in a 9,300 square mile area in the U.S. and Canada lost electrical power. ¶ More than 500 generating units at 265 power plants shut down during the outage, 22 of ¶ which were nuclear. Those plants took about two weeks to regain full capacity, and lost ¶ an average of more than half their capacity for 12 days. The shutdown was in part ¶ precautionary in nature. If an imbalance between load and supply occurs, power lines ¶ grow longer and sag from overheating and other hardware can fail. These imbalances ¶ can damage equipment that is hard-to-repair, requires long lead time to produce and is ¶ expensive. So, the grid quickly disconnects itself when a threatening imbalance is ¶ detected. Nuclear plants are required for safety reasons to shut down when the grid ¶ they’re connected to is de-energized.¶ 4¶ A U.S.-Canada Task Force found the main cause of the blackout to be the failure of a ¶ utility in Ohio to properly trim trees near a power line, causing the first in what became a ¶ set of cascading failures.¶ 5¶ Secretary of Energy Spencer Abraham said there would be ¶ no punishment for the utility because current U.S. law does not require electric reliability ¶ standards. However, the Energy Policy Act of 2005 (EPAct 2005) gave the Federal ¶ Energy Regulatory Commission (FERC) new authority to direct the industry to develop ¶ reliability standards. It directs FERC to designate an Electric Reliability Organization ¶ (ERO) to develop and propose reliability standards, which only after agreement by the ¶ industry become mandatory. The ERO chosen by the FERC is a volunteer, industry run ¶ organization. While FERC oversight of industry developed standards is an ¶ improvement over the previous situation, the Task Force remains concerned that FERC ¶ may be unable to reduce the risk to critical DoD missions to acceptable levels in a ¶ reasonable timeframe. ¶ **Some have argued that the August 2003 incident shows that the protections built into** ¶ **the grid worked. Within several hours electricity was restored to many areas, though a** ¶ **few areas waited nearly a week. However, the incident highlights how easily the power** ¶ **grid could be taken down. Also, quick restoration was possible because no significant** ¶ **equipment was damaged, something that might not occur in future incidents**. **Further,** ¶ **during the blackout most systems failed that would detect unauthorized border** ¶ **crossings, port landings, or unauthorized access to vulnerable sites. Future such blackouts could be exploited for terrorist activity, with potentially far more catastrophic** ¶ **results**. ¶ These risks exist elsewhere than in the U.S. For example, on September 28, 2003 Italy ¶ experienced the largest of a series of blackouts suffered through that year, affecting a ¶ total of 56 million people, and spilling into Switzerland.¶ 6¶ It was also the most serious ¶ blackout in Italy in 20 years. DoD installations located outside the continental United ¶ States (OCONUS) are dependent on the commercial grids serving their locations. ¶ Security of their power supplies and continuation of their missions is as important as ¶ within the U.S.

#### Surveillance key to stop bioterror – Characterize and effective response

NSB ‘12
(National Strategy for Biosurveillance, July 31, 2012 Accessed online August 24, 2012 at http://www.whitehouse.gov/sites/default/files/National\_Strategy\_for\_Biosurveillance\_July\_2012.pdf)

A well-integrated, national biosurveillance enterprise is a national security imperative . Our ability to ¶ detect quickly and characterize a potential incident of national significance that affects human, animal, ¶ or plant health is of paramount importance . Rapid detection and enhanced situational awareness are ¶ critical to saving lives and improving incident outcomes, whether the result of a bioterror attack or other ¶ weapons of mass destruction (WMD) threat, an emerging infectious disease, pandemic, environmental ¶ disaster, or a food-borne illness . Beyond our need to protect domestic interests, and because health ¶ threats transcend national borders, the United States also plays a vital role within an international ¶ network of biosurveillance centers across the globe.

#### Numerous attempts prove surveillance solves

Wagner 9/11

(Dr. Abraham R. Wagner is a Professor of International and Public Affairs at the ¶ Arnold A. Saltzman Institute of War & Peace Studies at Columbia University. “Counter-Terrorism Technologies -- Taking Stock on 9/11” 09/11/2012 2:13 pm accessed online September 11, 2012 at <http://www.huffingtonpost.com/abraham-r-wagner/counterterrorism-technolo_b_1874521.html>, TSW)

On this 11th anniversary of the 9/11 attacks, it makes sense to take stock of where the nation has progressed in its effort to deter and combat future terrorist attacks, both at home and abroad. The 9/11 attacks came as a shock, and have rightfully come to be regarded as a major U.S. intelligence failure. In the aftermath, the nation undertook significant organizational reforms designed to enable more effective intelligence and law enforcement operations against evolving terrorist threats. The country also looked to see what science, engineering and technology could do to help addresses these threats.¶ Technology has long been the nation's strong suit. Americans tend to believe that where there is a problem, there must certainly be a solution and it most likely involves technology and money. During the decade that followed 9/11, billions of dollars were spent on a vast range of programs and technologies in the name of counter-terrorism. For the first two years after 9/11, I joined with other scientists and engineers at the Department of Defense and the Intelligence Community in efforts to identify the most promising approaches to the problem. Ultimately we found that there was no magic bullet or perfect solution to this thorny problem, but were able to suggest a range of investments that could be made to address the evolving terrorist threat.¶ An honest assessment of these investments in counter-terrorism technologies reveals that the results have been mixed -- as one might well expect. A combination of greatly improved intelligence and law enforcement personnel have employed some of the better technologies with considerable success. Indeed, some 45 terrorist plots have been stopped and others deterred. How much of this has been simply luck and how much can be traced to any new technology program is a matter of debate, and there are clearly examples of both that can be found.¶ One area where technology has made a significant contribution has been in new systems to aid in intelligence and surveillance against terrorist operations. While terrorists may hold to an eighth century ideology, they have not been reluctant to employ 21st century communications and information technologies. They have utilized the Internet and cell phones for a number of purposes, and at the time of 9/11 the nation was in need of systems to intercept and sort out terrorist communications. While highly sensitive, public disclosures about several key programs show that considerable progress has been made in this critical area, giving the intelligence agencies some key tools in locating terrorists and stopping their plots. Aside from communications intercept, a new area of "data mining" has also shown considerable promise in locating terrorists and their plots.¶ At the same time, several of key surveillance programs used for counter-terrorism have come under fire from civil liberties groups as being unconstitutional violations of the Fourth Amendment privacy protections, and others. Critics of the Bush Administration saw this as "running roughshod over the Constitution." Even now there are still federal court challenges to laws such as the 2008 FISA Amendments Act and others that have enabled counter-terrorist efforts since 9/11. Ultimately a balance needs to be struck between the essential needs for intelligence to thwart future attacks and protected privacy rights, but as yet it remains an unsettled area where the Supreme Court will need to rule at some future point in time.¶ Less controversial have been efforts over the past decade to employ new information technologies to what has been termed the Information Sharing Environment -- collaborative efforts to best utilize available intelligence and other data among the various federal, state and local agencies with counter-terrorism responsibilities. While certainly some progress has been made over the past 11 years, the net result is largely a national embarrassment, and clearly a triumph of politics over physics. The information and communications technologies are all well-developed, but multiple bureaucracies have generated a set of plans and an even larger set of excuses as to why the fundamental problems in this area remain to be solved.

#### Terrorists can obtain Bio-weapons and will use them – Syria Demise

Blair ‘12

(Charles P. Blair joined FAS in June 2010. He is the Senior Fellow on State and Non-State Threats. Born and raised in Los Alamos, New Mexico, Mr. Blair was an exchange student in Moscow in the mid-1980s, witnessing firsthand the closing salvos of the Cold War. Since the end of that era, Mr. Blair has worked on issues relating to the diffusion and diversification of weapons of mass destruction (WMD) in the context of proliferation amid the rise of mass casualty terrorism incidents and the centripetal and centrifugal elements of globalization. Mr. Blair’s work focuses on state and violent non-state actors (VNSA) – amid a dystopic and increasingly tribal world. “Fearful of a nuclear Iran? The real WMD nightmare is Syria” 1 MARCH 2012 accessed online August 22, 2012 at http://www.thebulletin.org/web-edition/op-eds/fearful-of-nuclear-iran-the-real-wmd-nightmare-syria)

As possible military action against Iran's suspected nuclear weapons program looms large in the public arena, far more international concern should be directed toward Syria and its weapons of mass destruction. When the Syrian uprising began more than a year ago, few predicted the regime of President Bashar al-Assad would ever teeter toward collapse. Now, though, the demise of Damascus's current leadership appears inevitable, and Syria's revolution will likely be an unpredictable, protracted, and grim affair. Some see similarities with Libya's civil war, during which persistent fears revolved around terrorist seizure of Libyan chemical weapons, or the Qaddafi regime's use of them against insurgents. Those fears turned out to be unfounded.¶ But the Libyan chemical stockpile consisted of several tons of aging mustard gas leaking from a half-dozen canisters that would have been impossible to utilize as weapons. Syria likely has one of the largest and most sophisticated chemical weapon programs in the world. Moreover, Syria may also possess an offensive biological weapons capability that Libya did not.¶ While it is uncertain whether the Syrian regime would consider using WMD against its domestic opponents, Syrian insurgents, unlike many of their Libyan counterparts, are increasingly sectarian and radicalized; indeed, many observers fear the uprising is being "hijacked" by jihadists. Terrorist groups active in the Syrian uprising have already demonstrated little compunction about the acquisition and use of WMD. In short, should Syria devolve into full-blown civil-war, the security of its WMD should be of profound concern, as sectarian insurgents and Islamist terrorist groups may stand poised to seize chemical and perhaps even biological weapons.¶ An enormous unconventional arsenal. Syria's chemical weapons stockpile is thought to be massive. One of only eight nations that is not a member of the Chemical Weapons Convention -- an arms control agreement that outlaws the production, possession, and use of chemical weapons -- Syria has a chemical arsenal that includes several hundred tons of blistering agents along with likely large stockpiles of deadly nerve agents, including VX, the most toxic of all chemical weapons. At least four large chemical weapon production facilities exist. Additionally, Syria likely stores its deadly chemical weapons at dozens of facilities throughout the fractious country. In contrast to Libya's unusable chemical stockpile, analysts emphasize that Syrian chemical agents are weaponized and deliverable. Insurgents and terrorists with past or present connections to the military might feasibly be able to effectively disseminate chemical agents over large populations. (The Global Security Newswire recently asserted that "[t]he Assad regime is thought to possess between 100 and 200 Scud missiles carrying warheads loaded with sarin nerve agent. The government is also believed to have several hundred tons of sarin agent and mustard gas stockpiled that could be used in air-dropped bombs and artillery shells, according to information compiled by the James Martin Center.")¶ Given its robust chemical weapons arsenal and its perceived need to deter Israel, Syria has long been suspected of having an active biological weapons program. Despite signing the Biological Weapons and Toxins Convention in 1972 (the treaty prohibits the development, production, and stockpiling of biological and toxin weapons), Syria never ratified the treaty. Some experts contend that any Syrian biological weapons program has not moved beyond the research and development phase. Still, Syria's biotechnical infrastructure undoubtedly has the capability to develop numerous biological weapon agents. After Israel destroyed a clandestine Syrian nuclear reactor in September 2007, Damascus may have accelerated its chemical and biological weapons programs.¶ It's hard to guard WMD when a government collapses. Although the United States and its allies are reportedly monitoring Syria's chemical weapons, recent history warns that securing them from theft or transfer is an extraordinary challenge. For example, during Operation Iraqi Freedom, more than 330 metric tons of military-grade high explosives vanished from Iraq's Al-Qaqaa military installation. Almost 200 tons of the most powerful of Iraq's high-explosives, HMX -- used by some states to detonate nuclear weapons -- was under International Atomic Energy Agency seal. Many tons of Al-Qaqaa's sealed HMX reportedly went missing in the early days of the war in Iraq. Forensic tests later revealed that some of these military-grade explosives were subsequently employed against US and coalition forces.¶ Even with a nationwide presence of 200,000 coalition troops, several other sensitive military sites were also looted, including Iraq's main nuclear complex, Tuwaitha. Should centralized authority crumble in Syria, it seems highly unlikely that the country's 50 chemical storage and manufacturing facilities -- and, possibly, biological weapon repositories -- can be secured. The US Defense Department recently estimated that it would take more than 75,000 US military personnel to guard Syria's chemical weapons. This is, of course, if they could arrive before any WMD were transferred or looted -- a highly unlikely prospect.¶ Complicating any efforts to secure Syria's WMD, post-Assad, are its porous borders. With Syria's government distracted by internal revolt and US forces now fully out of Iraq, it is plausible that stolen chemical or biological weapons could find their way across the Syrian border into Iraq. Similarly, Syrian WMD could be smuggled into southern Turkey, Jordan, Lebanon, the West Bank, Israel, and, potentially, the United States and Europe.¶ At least six formal terrorist organizations have long maintained personnel within Syria. Three of these groups -- Hamas, Hizbollah, and Palestinian Islamic Jihad -- have already attempted to acquire or use chemical or biological agents, or both. Perhaps more troubling, Al Qaeda-affiliated fighters from Iraq have streamed into Syria, acting, in part, on orders from Al Qaeda leader Ayman al-Zawahiri. In the past, Al Qaeda-in-Iraq fighters attempted to use chemical weapons, most notably attacks that sought to release large clouds of chlorine gas. The entry of Al Qaeda and other jihadist groups into the Syrian crisis underscores its increasingly sectarian manifestation. Nearly 40 percent of Syria's population consists of members of minority communities. Syria's ruling Alawite regime, a branch of Shia Islam, is considered heretical by many of Syria's majority Sunni Muslims -- even those who are not jihadists. Alawites, Druze, Kurds, and Christians could all become targets for WMD-armed Sunni jihadists. Similarly, Shiite radicals could conceivably employ WMD agents against Syria's Sunnis.¶ Religious fanaticism and WMD. Evidence of growing religious fanaticism is also reflected in recent Syrian suicide attacks. Since last December, at least five suicide attacks occurred in Syria. In the 40 years preceding, only two suicide attacks were recorded. Al Qaeda-linked mujahidin are believed to be responsible for all of these recent attacks. Civil wars are often the most violent and unpredictable manifestations of war. With expanding sectarian divisions, the use of seized WMD in Syria's uprising is plausible. To the extent that religious extremists believe that they are doing God's bidding, fundamentally any action they undertake is justified, no matter how abhorrent, since the "divine" ends are believed to legitimize PDF the means.¶ The situation in Syria is unprecedented. Never before has a WMD-armed country fallen into civil war. All states in the region stand poised to lose if these weapons find their way outside of Syria. The best possible outcome, in terms of controlling Syria's enormous WMD arsenal, would be for Assad to maintain power, but such an outcome seems increasingly implausible. And there is painfully little evidence that democratic forces are likely to take over in Syria. Even if they do eventually triumph, it will take months or years to consolidate control over the entire country.¶ If chaos ensues in Syria, the United States cannot go it alone in securing hundreds of tons of Syrian WMD. Regional leaders -- including some, such as Sunni Saudi Arabia and Shiite Iran, that are now backing the insurgency and the regime, respectively -- must come together and begin planning to avert a dispersion of Syrian chemical or biological weapons that would threaten everyone, of any political or religious persuasion, in the Middle East and around the world.

#### Bioterror sweeps the planet – psychological, economic impact and ease of spread

Lilliefors ‘12

(James Lilliefors is a longtime journalist and writer, Lilliefors has written frequently for the Washington Post, the Miami Herald, The Boston Globe and the Baltimore Sun. He started his journalism career as a writer and editor for Runner's World magazine and worked for many years as a newspaper editor and reporter, in Maryland and in Florida, winning a number of reporting awards. He also has extensively explored the issue of biological weapons research in his novel Viral. “Bio-weapons 40 years later: Are we any safer?” APRIL 10, 2012 accessed online August 25, 2012 at http://www.sohopress.com/bio-weapons-40-years-later-are-we-any-safer/442/)

As many as a dozen other nations have pursued or developed offensive biological weapons programs since the treaty came into effect, U.S. officials believe, including North Korea, China, Iran and Syria. But perhaps more troubling is the fact that it has become easier for potential terrorists to obtain biological weapons. As Secretary of State Hillary Clinton said at the Biological and Toxin Weapons Convention Review Conference in Geneva last December (the seventh such international conference since the treaty was signed): “Unfortunately, the ability of terrorists and other non-state actors to develop these weapons is growing.” So, too, apparently, is their desire to do so. In 2010, for instance, al-Qaeda in the Arabian Peninsula called for “brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction.” The world community remains focused on potential nuclear threats—from Iran to North Korea to Pakistan—even though a biological attack could be just as devastating, and more unpredictable. This was the message that Ellen Tauscher, undersecretary of state for Arms Control and International Security, took to the 2009 annual meeting of the States Parties to the Biological Weapons Convention. Tauscher warned that “… a major biological weapons attack on one of the world’s major cities could cause as much death and economic and psychological damage as a nuclear attack.” Her comments came in conjunction with President Obama’s National Strategy for Countering Biological Threats, which set a platform for identifying and responding to possible bio-attacks. This new national strategy was clearly a step in the right direction, updating some of the objectives and principles of the 1972 treaty (which now has 165 signatories). But a more robust international dialogue on improving global health security—something akin to the nuclear threat dialogue—is still sorely needed. To understand how insidiously disruptive even a small-scale biological event could be, we need only look at the anthrax attacks of September and October 2001. Several letters containing anthrax spores were mailed anonymously to news organizations and two United States senators. Five people died as a result, 17 others were infected. Congress was paralyzed and the country was on high alert for weeks—although the heightened concern was mostly transitory. The federal investigation into the attacks went on for more than eight years without an arrest. The case was finally closed in 2010, a year and a half after the FBI’s major suspect, a government bio-defense researcher named Brice Ivins, killed himself.¶ The potential for an “anonymous” event is one of the most frightening aspects of the increasingly complex biological threat. As new diseases emerge, as the life sciences grow more sophisticated and as globalization draws everyone closer together, there are simply more ways that a deadly virus could get loose than there were even a few years ago. It is possible that a deadly pathogen could sweep the planet and we would never know for certain if it was naturally occurring, accidental, a terror attack or something deliberately let loose by a deranged scientist—which is what the FBI believes happened with the anthrax attacks of 2001. As President Obama said recently, “We must come together to prevent and detect and fight every kind of biological danger, whether it’s a pandemic like H1N1 or a terrorist threat or a terrible disease.”

#### Extinction

Ochs 2

**(**Richard, Naturalist – Grand Teton National park with Masters in Natural Resource Management – Rutgers, “Biological Weapons must be abolished immediately” 6-9, http://www.freefromterror.net/other\_articles/abolish.html)

Of all the weapons of mass destruction, the genetically engineered **biological weapons**, many without a known cure or vaccine, **are an extreme danger to the continued survival of life** on earth. Any perceived **military** value **or deterrence pales in comparison to the great risk these weapons pose just sitting in vials in laboratories.** While a "nuclear winter," resulting from a massive exchange of **nuclear weapons**, could also kill off most of life on earth and severely compromise the health of future generations, they **are easier to control**. **Biological weapons**, on the other hand**, can get out of control very easily**, as the recent anthrax attacks has demonstrated. There is no way to guarantee the security of these doomsday weapons because very tiny amounts can be stolen or accidentally released and then grow or be grown to horrendous proportions. The Black Death of the Middle Ages would be small in comparison to the potential damage bioweapons could cause. Abolition of chemical weapons is less of a priority because, while they can also kill millions of people outright, their persistence in the environment would be less than nuclear or biological agents or more localized. Hence, chemical weapons would have a lesser effect on future generations of innocent people and the natural environment. Like the Holocaust, once a localized chemical extermination is over, it is over. With nuclear and biological weapons, the killing will probably never end. Radioactive elements last tens of thousands of years and will keep causing cancers virtually forever. Potentially worse than that, bio-engineered agents by the hundreds with no known cure could wreck even greater calamity on the human race than could persistent radiation. AIDS and ebola viruses are just a small example of recently emerging plagues with no known cure or vaccine. Can we imagine hundreds of such plagues? **HUMAN EXTINCTION IS NOW POSSIBLE**.

#### New gene manipulation takes out your defense

MSNBC 2011

(“Clinton warns of bioweapon threat from gene tech,” pg online @ http://www.msnbc.msn.com/id/45584359/ns/… “For an international verification system — akin to that for nuclear weapons — saying it is too complicated to monitor every lab's activities.”)

GENEVA — New gene assembly technologythat offers great benefits for scientific research could also be used by terrorists to create biological weapons, U.S. Secretary of State Hillary Rodham Clinton warned Wednesday. **The** threat from bioweapons has drawn little attention in recent years, as governments focused more on the risk of nuclear weapons proliferation to countries such as Iran and North Korea. But experts have warned that the increasing ease with which bioweapons can be created might be used by terror groups to develop and spread new diseases that could mimic the effects of the fictional global epidemic portrayed in the Hollywood thriller **"**Contagion." Speaking at an international meeting in Geneva aimed at reviewing the 1972 Biological Weapons Convention, Clinton told diplomats that the challenge was to maximize the benefits of scientific research and minimize the risks that it could be used for harm. "The emerging gene synthesis industry is making genetic material more widely available**,"** she said. "This has many benefits for research, but it could also potentially be used to assemble the components of a deadly organism." Gene synthesis allows genetic material — the building blocks of all organisms — to be artificially assembled in the lab, greatly speeding up the creation of artificial viruses and bacteria. The U.S. government has cited efforts by terrorist networks such as al-Qaeda to recruit scientists capable of making biological weapons as a national security concern. "Acrude but effective terrorist weapon can be made using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology," Clinton told the meeting. "Less than a year ago**,** al-Qaeda in the Arabian Peninsula made a call to arms for, and I quote, 'brothers with degrees in microbiology or chemistry ... to develop a Weapon of Mass Destruction,**'"** she said. Clinton also mentioned the Aum Shinrikyo cult's attempts in Japan to obtain anthrax in the 1990s, and the 2001 anthrax attack**s** in the United States that killed five people. Washington has urged countries to be more transparent about their efforts to clamp down on the threat of bioweapons. But U.S. officials have also resisted calls for an international verification system — akin to that for nuclear weapons — saying it is too complicated to monitor every lab's activities

### Advantage 2 is china

#### Global SMR development’s inevitable – only a question of whether the US leads

Hiruo 10

(Elaine, Managing Editor of Platts, "SMR technology gives US chance at market leadership, vendors say," 9-2-10, Lexis)

The US nuclear industry lost its leadership position in the global market for large reactors and now has the opportunity to secure that role for small modular reactors, some SMR vendors told a subcommittee of the Blue Ribbon Commission on America's Nuclear Future August 30.¶ But they stressed their companies will need the federal government's help to beat foreign competitors to the market.¶ "We're at a unique crossroads right now," Christofer Mowry, president of Babcock and Wilcox Nuclear Energy, told the reactor and fuel cycle technology subcommittee during its two-day meeting in Washington. B&W is one of several US companies — including Hyperion Power Generation, NuScale and Westinghouse — developing an SMR design.¶ "Other countries want a technology that has been built in the host country first," Paul Lorenzini, CEO of NuScale, told the panel. "There are lots of small reactor designs out there," he said. Both the Koreans and Japanese have SMR programs, according to industry executives on the speakers panel. The question is, Mowry said, who enters the global market first with a reactor already operating on its home turf.

#### SMR key to nuclear leadership- recovers leadership lost to China

Rosner and Goldberg 11

(Robert Rosner, astrophysicist and founding director of the Energy Policy Institute at Chicago. He was the director of Argonne National Laboratory from 2005 to 2009, Stephen Goldberg, Special Assistant to the Director, Argonne National Laboratory ¶ Senior Fellow, Energy Policy Institute at Chicago¶ Research Coordinator, Global Nuclear Future Initiative ¶ American Academy of Arts and Sciences, “Small Modular Reactors – Key to Future Nuclear Power ¶ Generation in the U.S.” Energy Policy Institute at Chicago, <http://csis.org/files/attachments/111129_SMR_White_Paper.pdf>, SEH)

As stated earlier, SMRs have the potential to achieve significant greenhouse gas emission¶ reductions. They could provide alternative baseload power generation to facilitate the retirement¶ of older, smaller, and less efficient coal generation plants that would, otherwise, not be good¶ candidates for retrofitting carbon capture and storage technology. They could be deployed in¶ regions of the U.S. and the world that have less potential for other forms of carbon-free¶ electricity, such as solar or wind energy. There may be technical or market constraints, such as¶ projected electricity demand growth and transmission capacity, which would support SMR¶ deployment but not GW-scale LWRs. From the on-shore manufacturing perspective, a key point¶ is that the manufacturing base needed for SMRs can be developed domestically. Thus, while the¶ large commercial LWR industry is seeking to transplant portions of its supply chain from current¶ foreign sources to the U.S., the SMR industry offers the potential to establish a large domestic¶ manufacturing base building upon already existing U.S. manufacturing infrastructure and¶ capability, including the Naval shipbuilding and underutilized domestic nuclear component and¶ equipment plants. The study team learned that a number of sustainable domestic jobs could be¶ created – that is, the full panoply of design, manufacturing, supplier, and construction activities –¶ if the U.S. can establish itself as a credible and substantial designer and manufacturer of SMRs.¶ While many SMR technologies are being studied around the world, a strong U.S.¶ commercialization program can enable U.S. industry to be first to market SMRs, thereby serving¶ as a fulcrum for export growth as well as a lever in influencing international decisions on¶ deploying both nuclear reactor and nuclear fuel cycle technology. A viable U.S.-centric SMR¶ industry would enable the U.S. to recapture technological leadership in commercial nuclear¶ technology, which has been lost to suppliers in France, Japan, Korea, Russia, and, now rapidly¶ emerging, China.

#### Action now is key – any delay allows China to get ahead

Wheeler 12
(Brian, editor of Power Engineering magazine, "Developing Small Modular Reactor Designs in the U.S," 4-1-12, [http://www.power-eng.com/articles/npi/print/volume-5/issue-2/nucleus/developing-small-modular-reactor-designs-in-the-us.html-http://www.power-eng.com/articles/npi/print/volume-5/issue-2/nucleus/developing-small-modular-reactor-designs-in-the-us.html](http://www.power-eng.com/articles/npi/print/volume-5/issue-2/nucleus/developing-small-modular-reactor-designs-in-the-us.html-http%3A/www.power-eng.com/articles/npi/print/volume-5/issue-2/nucleus/developing-small-modular-reactor-designs-in-the-us.html))

The development of small modular reactors in the U.S. continues to gain support as the country searches for clean energy options. Although concepts are still being designed, the U.S. Department of Energy gave the sector a boost in March when it released a Funding Opportunity Announcement to establish cost-shared agreements to support the design and licensing of SMRs. A total of $450 million will be made available to support two SMRs over five years.¶ "America's choice is clear," said Energy Secretary Steven Chu. "We can either develop the next generation of clean energy technologies, which will help create thousands of jobs and export opportunities here in America, or we can wait for other countries to take the lead."¶ The Energy Department said SMRs are about one-third the size of current nuclear power plants and are designed to offer a host of safety, siting, construction and economic benefits. The size, according to DOE, makes SMRs ideal for small electric grids and locations that cannot support large reactors. Also, the reduced cost due to factory production may make the SMR more attractive to utilities seeking to add a smaller amount of power.¶ "We really see a market right now that includes utilities that don't have a large financial base and that are interested in clean, sustainable power. They are looking at the SMR as an investment of a billion dollars versus several billion dollars for large nuclear," said John Goossen, vice president of Innovation and SMR Development at Westinghouse. "These utilities, in most cases, do not need large chunks of power and are looking to add power incrementally as part of their plans for growth." In February, the Electric Power Research Institute and the Oak Ridge National Laboratory released a study that stated the U.S. has the potential to generate 201 GW from SMRs. For their study, a small modular reactor was labeled as 350 MWe or less. The DOE defines an SMR as 300 MWe or less. The study stated that "350 MWe was considered a reasonable bounding estimate of an initial SMR installation."¶ The U.S. is leading the world in the amount of SMR designs, but China could be the first country to have a SMR design operational. Launched in 2011, a 200 MWe HTR-PM reactor is under construction with the support of China Huaneng Group, China Nuclear Engineering and Construction, and Tsinghua University's INET, according to the World Nuclear Association.¶ "The U.S. needs to move faster if we are going to compete with the South Koreans, the Chinese and the Russians," said Bob Prince, vice chairman and CEO, Gen4 Energy.

#### Chinese nuclear exports expand their nuclear leadership- leads to Chinese hege and aggression

Blank ‘10

Research Professor of National Security Affair, Strategic Studies Institute (Stephen, China puts down marker in nuclear power race, [www.atimes.com/atimes/China\_Business/LF16Cb01.html](http://www.atimes.com/atimes/China_Business/LF16Cb01.html))

¶ China announced in late April the sale of two nuclear reactors to Pakistan. This deal is clearly against the guidelines of the Nuclear Suppliers Group (NSG) and the spirit if not the letter of the nuclear Non-proliferation Treaty (NPT) [1]. Nevertheless, the United States has not and may not even register a protest to this sale in spite of its implications for regional stability. Washington's desire for Beijing's support for effective sanctions on Iran dampens the political will to take Beijing to task on other international issues [2]. Although the announcement of this deal does not come as a surprise, the sale reinforces China's long-standing ties to Pakistan and the country's sensitive nuclear program, and it testifies to the growing strength of China's nuclear industry through its ability and desire to export to foreign markets. As the Iran connection also demonstrates, this deal is taking place within a strategic framework that extends beyond Sino-Pakistani relations. Indeed, China's sale of additional nuclear reactors to Pakistan is happening in the context of renewed aggressiveness by major nuclear powers to export reactors and technology abroad on a global scale and the parallel expansion of the desire by many Asian states for nuclear energy. China has already built one reactor, the Chashma-1 in Punjab and is building a second one, Chashma-2. According to the "new" deal, China is lending Pakistan $207 million to buy two more reactors, Chashma-3 and Chashma-4. Beijing and Islamabad argue that these new deals do not violate the NSG guidelines because they are part of the original deal for Chashma-1 and 2 from 2004 before China joined the NSG. Pakistan has sought nuclear reactors from China since 2008 at least and oft-cites as Islamabad's defense the 2005 Indo-American deal where the George W Bush administration prevailed upon the NSG in 2008 to grant India a waiver even though New Delhi is not a signatory to the NPT. Naturally, the Indo-US deal infuriated the Pervez Musharraf regime and its successor regime headed by President Asif Ali Zardari. Pakistan claimed that it also had urgent energy needs that could only be solved by nuclear energy imports, but the United States, though it recognizes those needs, fobbed Pakistan off. At the same time, however, India's success with the NSG owed much to its very good record on non-proliferation, something that cannot be said about Pakistan. To be sure, China has long supported Pakistan's nuclear and military programs to check Indian power. This deal is another sign of the Middle Kingdom's growing assertiveness in international affairs. For example, about a month before the sale to Pakistan, China reportedly announced the opening of a missile plant in Iran. This plant, taken in tandem with China's growing nuclear exports, arguably betokens an expansion in China's support for dubious states in the proliferation context. The flap over Myanmar's nuclear ambitions is further cause for concern about risks for regional instability. There is no doubt that China's overall foreign and defense policy has become generally assertive but there is more within the context of this deal than its growing assertiveness. Nonetheless, China's assertiveness on these issues is palpable. China plays in the nuclear export arena as both an importer and exporter. It has imported reactors and enrichment plants from the United States, France and Russia. It currently seeks to import the newest fourth generation reactors for commercial use. Yet in 2008, after years of frustration, it coordinated a state policy to develop nuclear power independently and it now intends to compete with other exporters (eg South Korea). Thus, China has recently opened up discussions with Turkey and Arab states about selling to Istanbul nuclear reactors and technology ostensibly for peaceful use. Finally, although China never misses opportunities to proclaim its devotion to the cause of nuclear nonproliferation, it has in fact, been a major proliferator of missile technology to Iran, among others [3]. At the same time, China's import and export activities reflect the growing global demand for nuclear power. The surge in demand for nuclear energy has several causes. Given the "oil shock" of the previous decade, even though prices have fallen 40-50% from their high in 2008, many states that lack hydrocarbon resources are searching for what they believe is a more stable, reliable, and domestically based source of energy in the face of expected recoveries of their domestic demand for energy. Another driver of demand for nuclear energy is the growing concern for the dangers of climate change brought on by profligate hydrocarbon use. Allegedly, nuclear energy - safely and properly used - represents less of a risk to the environment. China's deal with Pakistan must also be viewed in the context of this heightened competition to export nuclear technology and the parallel-expansion in demand for it. The most recent precedent of a nuclear energy deal is the US-India nuclear deal whereby the United States will provide India with civilian nuclear energy and for which Washington got a waiver in the NSG. At the time, it aroused much controversy precisely for the reason that it violated NSG guidelines and the spirit of the Nonproliferation Treaty [4]. However, since then there has been a veritable explosion of competition among Asian and European providers (including the United States) to sell nuclear technology abroad, not least to India. South Korea's shocking victory over France in the competition to sell to the United Arab Emirates has had major effects abroad in this context. South Korea clearly aims to be a major nuclear power exporter. Its firms like Korea Electric Power Co are active in India, China, Jordan, and Turkey [5]. South Korea aims to capture 20% of the global market by 2030 and export 80 nuclear reactors [6]. South Korean President Lee Myung-bak has publicly expressed his belief that this deal with the United Arab Emirates will facilitate other exports abroad. Yet South Korea's stunning example has not been lost on its competitors, Japan and China. For instance, in Japan, A new company should be formed later this year to support Japanese exports of nuclear power technology and knowledge. The Ministry of Economy Trade and Industry (Meti) has agreed to set up the firm with involvement from utilities the Tokyo, Chubu and Kansai electric power companies as well as with reactor vendors Toshiba, Hitachi and Mitsubishi Heavy Industries. The Innovation Network of Japan - a joint venture of government and industry - may also join. The move is seen as a reaction to South Korea's success in exporting to the United Arab Emirates and directed towards winning new nuclear contracts with the emerging nuclear countries of South-East Asia [7]. Not to be undone, Japan is now considering relaxing its restrictions on the export of nuclear technology, specifically to India (part of the larger dawning Indo-Japanese partnership due to the rise of China). These discussions reflect the forces driving the nuclear export and import in Asia. Since getting its waiver from the NSG India has concluded civil nuclear deals with the United States, France, Russia, and Kazakhstan. India clearly wants to cement ties with Japan in this and other domains, and Japan, likewise, wants stronger ties with India and not to be left out of one of the biggest nuclear markets in the world [8]. More recently, the two states agreed to form a working group to prepare the way for a reactor sale devoted strictly to peaceful purposes. Clearly, the pressure from South Korea is prompting Japan to gear up and compete in the exploding Asian market with its spiraling demand for electricity and all forms of power. South Korea and Japan are hardly the only rivals in this field. France and the United States are long-standing purveyors of peaceful nuclear technology. Russia, since 2006 has been competing on a global scale for uranium sources and to see nuclear reactors across the globe. Moscow's efforts in this field merit a separate analysis but it is a vigorous rival for these other Asian and Western exporters. Therefore, China's recent nuclear exports to Pakistan and the future of its nuclear exports in general need to be examined in these three contexts. The first context is that of the overall growth of the assertiveness of China's diplomacy in general and efforts to use nuclear power and military instruments like missiles as sources of influence abroad. In the case of exports to Pakistan, a second context is the long-standing geopolitical rivalry among India, China and Pakistan in which China's "all-weather" friendship with Pakistan has been a deliberate and conscious Chinese strategy to inhibit the growth of Indian power. Finally, we must keep in mind that China is not only an exporter of nuclear energy, it also is a consumer of that energy and so it will be a key market for other exports from the likes of Russia, the United States, France, South Korea, and Japan. As an importer, it obviously will welcome the rivalry of exporters who wish to sell to it so that it can obtain more favorable terms. However, as an exporter of nuclear energy and a power that wants to export more of it for both economic and political gain, it cannot afford to let either its rivals outpace it in Asia or in other areas that China deems as essential to the pursuit of its larger strategic goals.

#### Ceding nuclear leadership to China leads to unchecked Chinese hege in Asia- kill US leadership

Cullinane ‘11

[Scott Cullinane is a graduate student at the Institute of World Politics in Washington, D.C <http://www.ensec.org/index.php?option=com_content&view=article&id=319:america-falling-behind-the-strategic-dimensions-of-chinese-commercial-nuclear-energy&catid=118:content&Itemid=376> ETB]

Due to a confluence of events the United States has recently focused more attention on nuclear weapons policy than it has in previous years; however, the proliferation of commercial nuclear technology and its implications for America’s strategic position have been largely ignored. While the Unites States is currently a participant in the international commercial nuclear energy trade, America’s own domestic construction of nuclear power plants has atrophied severely and the US risks losing its competitive edge in the nuclear energy arena.¶ Simultaneously, the People’s Republic of China (PRC) has made great strides in closing the nuclear energy development gap with America. Through a combination of importing technology, research from within China itself, and a disciplined policy approach the PRC is increasingly able to leverage the export of commercial nuclear power as part of its national strategy. Disturbingly, China does not share America’s commitment to stability, transparency, and responsibility when exporting nuclear technology. This is a growing strategic weakness and risk for the United States. To remain competitive and to be in a position to offset the PRC when required the American government should encourage the domestic use of nuclear power and spur the forces of technological innovation.¶ History has recorded well American wartime nuclear developments which culminated in the July 1945 Trinity Test, but what happened near Arco, Idaho six years later has been overlooked. In 1951, scientists for the first time produced usable electricity from an experimental nuclear reactor. Once this barrier was conquered the atom was harnessed to generate electricity and permitted America to move into the field of commercial nuclear power. In the next five years alone the United States signed over 20 nuclear cooperation agreements with various countries. Not only did the US build dozens of power plants domestically during the 1960s and 1970s, the US Export-Import Bank also distributed $7.1 billion dollars in loans and guarantees for the international sale of 49 reactors. American built and designed reactors were exported around the world during those years. Even today, more than 60% of the world’s 440 operating reactors are based on technology developed in the United States. The growth of the US civilian nuclear power sector stagnated after the Three Mile Island incident in 1979 – the most serious accident in American civilian nuclear power history. Three Mile Island shook America’s confidence in nuclear power and provided the anti-nuclear lobby ample fuel to oppose the further construction of any nuclear power plants. In the following decade, 42 planned domestic nuclear power plants were cancelled, and in the 30 years since the Three Mile Island incident the American nuclear power industry has survived only through foreign sales and merging operations with companies in Asia and Europe. Westinghouse sold its nuclear division to Toshiba and General Electric joined with Hitachi. Even the highest levels of the American government came to cast nuclear power aside. President Bill Clinton bragged in his 1993 State of the Union Address that “we are eliminating programs that are no longer needed, such as nuclear power research and development.” ¶ America’s slow pace of reactor construction over the past three decades has stymied innovation and caused the nuclear sector and its industrial base to shrivel. While some aspects of America’s nuclear infrastructure still operate effectively, many critical areas have atrophied. For example, one capability that America has entirely lost is the means to cast ultra heavy forgings in the range of 350,000 – 600,000 pounds, which impacts the construction of containment vessels, turbine rotors, and steam generators. In contrast, Japan, China, and Russia all possess an ultra heavy forging capacity and South Korea and India plan to build forges in this range. Likewise, the dominance America enjoyed in uranium enrichment until the 1970s is gone. The current standard centrifuge method for uranium enrichment was not invented in America and today 40% of the enriched uranium US power plants use is processed overseas and imported. Another measure of how much the US nuclear industry has shrunk is evident in the number of companies certified to handle nuclear material. In the 1980s the United States had 400 nuclear suppliers and 900 holders of N-stamp certificates (N-stamps are the international nuclear rating certificates issued by the American Society of Mechanical Engineers). By 2008 that number had reduced itself to 80 suppliers and 200 N-stamp holders. A recent Government Accountability Office report, which examined data from between 1994 and 2009, found the US to have a declining share of the global commercial nuclear trade. However, during that same period over 60 reactors were built worldwide. Nuclear power plants are being built in the world increasingly by non-American companies.¶ The American nuclear industry entered the 1960s in a strong position, yet over the past 30 years other countries have closed the development gap with America. The implications of this change go beyond economics or prestige to include national security. These changes would be less threatening if friendly allies were the ones moving forward with developing a nuclear export industry; however, the quick advancement of the PRC in nuclear energy changes the strategic calculus for America.¶ The shifting strategic landscape¶ While America’s nuclear industry has languished, current changes in the world’s strategic layout no longer allow America the option of maintaining the status quo without being surpassed. The drive for research, development, and scientific progress that grew out of the Cold War propelled America forward, but those priorities have long since been downgraded by the US government. The economic development of formerly impoverished countries means that the US cannot assume continued dominance by default. The rapidly industrializing PRC is seeking its own place among the major powers of the world and is vying for hegemony in Asia; nuclear power is an example of their larger efforts to marshal their scientific and economic forces as instruments of national power.¶ The rise of China is a phrase that connotes images of a backwards country getting rich off of exporting cheap goods at great social and environmental costs. Yet, this understanding of the PRC has lead many in the United States to underestimate China’s capabilities. The Communist Party of China (CPC) has undertaken a comprehensive long-term strategy to transition from a weak state that lags behind the West to a country that is a peer-competitor to the United States. Nuclear technology provides a clear example of this. ¶ In 1978, General Secretary Deng Xiaoping began to move China out of the destructive Mao era with his policies of 'reform and opening.' As part of these changes during the 1980s, the CPC began a concerted and ongoing effort to modernize the PRC and acquire advanced technology including nuclear technology from abroad. This effort was named Program 863 and included both legal methods and espionage. By doing this, the PRC has managed to rapidly catch up to the West on some fronts. In order to eventually surpass the West in scientific development the PRC launched the follow-on Program 973 to build the foundations of basic scientific research within China to meet the nation’s major strategic needs. These steps have brought China to the cusp of the next stage of technological development, a stage known as “indigenous innovation.”¶ ¶ In 2006 the PRC published their science and technology plan out to 2020 and defined indigenous innovation as enhancing original innovation, integrated innovation, and re-innovation based on assimilation and absorption of imported technology in order improve national innovation capability. The Chinese seek to internalize and understand technological developments from around the world so that they can copy the equipment and use it as a point to build off in their own research. This is a step beyond merely copying and reverse engineering a piece of technology. The PRC sees this process of absorbing foreign technology coupled with indigenous innovation as a way of leapfrogging forward in development to gain the upper hand over the West. The PRC’s official statement on energy policy lists nuclear power as one of their target fields. When viewed within this context, the full range of implications from China’s development of nuclear technology becomes evident. The PRC is now competing with the United States in the areas of innovation and high-technology, two fields that have driven American power since World War Two. China’s economic appeal is no longer merely the fact that it has cheap labor, but is expanding its economic power in a purposeful way that directly challenges America’s position in the world.¶ ¶ The CPC uses the market to their advantage to attract nuclear technology and intellectual capital to China. The PRC has incentivized the process and encouraged new domestic nuclear power plant construction with the goal of having 20 nuclear power plants operational by 2020. The Chinese Ministry of Electrical Power has described PRC policy to reach this goal as encouraging joint investment between State Owned Corporations and foreign companies. 13 reactors are already operating in China, 25 more are under construction and even more reactors are in the planning stages. ¶ In line with this economic policy, China has bought nuclear reactors from Westinghouse and Areva and is cooperating with a Russian company to build nuclear power plants in Taiwan. By stipulating that Chinese companies and personnel be involved in the construction process, China is building up its own domestic capabilities and expects to become self-sufficient. China’s State Nuclear Power Technology Corporation has partnered with Westinghouse to build a new and larger reactor based on the existing Westinghouse AP 1000 reactor. This will give the PRC a reactor design of its own to then export. If the CPC is able to combine their control over raw materials, growing technical know-how, and manufacturing base, China will not only be a powerful economy, but be able to leverage this power to service its foreign policy goals as well.¶ Even though the PRC is still working to master third generation technology, their scientists are already working on what they think will be the nuclear reactor of the future. China is developing Fourth Generation Fast Neutron Reactors and wants to have one operational by 2030. Additionally, a Chinese nuclear development company has announced its intentions to build the “world’s first high-temperature, gas-cooled reactor” in Shandong province which offers to possibility of a reactor that is nearly meltdown proof. A design, which if proved successful, could potentially redefine the commercial nuclear energy trade.¶ The risk to America¶ The international trade of nuclear material is hazardous in that every sale and transfer increases the chances for an accident or for willful misuse of the material. Nuclear commerce must be kept safe in order for the benefits of nuclear power generation to be realized. Yet, China has a record of sharing dangerous weapons and nuclear material with unfit countries. It is a risk for America to allow China to become a nuclear exporting country with a competitive technical and scientific edge. In order to limit Chinese influence and the relative attractiveness of what they can offer, America must ensure its continuing and substantive lead in reactor technology.¶ ¶ The PRC’s record of exporting risky items is well documented. It is known that during the 1980s the Chinese shared nuclear weapon designs with Pakistan and continues to proliferate WMD-related material. According to the Office of the Director of National Intelligence to Congress, China sells technologies and components in the Middle East and South Asia that are dual use and could support WMD and missile programs. Jane’s Intelligence Review reported in 2006 that China,¶ Despite a 1997 promise to Washington to halt its nuclear technology sales to Iran, such assistance is likely to continue. In 2005, Iranian resistance groups accused China of selling Iran beryllium, which is useful for making nuclear triggers and maraging steel (twice as hard as stainless steel), which is critical for fabricating centrifuges needed to reprocess uranium into bomb-grade material. ¶ China sells dangerous materials in order to secure its geopolitical objectives, regardless if those actions harm world stability. There is little reason to believe China will treat the sale of nuclear reactors any differently. Even if the PRC provides public assurances that it will behave differently in the future, the CPC has not been truthful for decades about its nuclear material and weapons sales and hence lacks credibility. For example, in 1983 Chinese Vice Premier Li Peng said that China does not encourage or support nuclear proliferation. In fact, it was that same year that China contracted with Algeria, then a non-NPT [Non-Proliferation Treaty] state, to construct a large, unsafeguarded plutonium production reactor. In 1991 a Chinese Embassy official wrote in a letter to the The Washington Post that 'China has struck no nuclear deal with Iran.' In reality, China had provided Iran with a research reactor capable of producing plutonium and a calutron, a technology that can be used to enrich uranium to weapons-grade. It has been reported that even after United Nation sanctions were put on Iran, Chinese companies were discovered selling “high-quality carbon fiber” and “pressure gauges” to Iran for use in improving their centrifuges.¶ In 2004 the PRC joined the Nuclear Suppliers Groups (NSG), gaining international recognition of their growing power in the nuclear field. In spite of this opportunity for China to demonstrate its responsibility with nuclear energy, it has not fulfilled it NSG obligations. The PRC has kept the terms of its nuclear reactor sale to Pakistan secret and used a questionable legal technicality to justify forgoing obtaining a NSG waiver for the deal. Additionally, China chose to forgo incorporating new safety measures into the reactors in order to avoid possible complications.¶ A further consequence of China exporting reactors is that these countries may wish to control the fuel cycle which provides the uranium to power their new reactors. The spread of fuel cycle technology comes with two risks: enrichment and reprocessing. Uranium can be enriched to between 3% and 5% for reactor use, but the process can be modified to produce 90% enriched uranium which is weapons-grade. Even if a country only produces low enriched uranium they could easily begin enriching at a higher level if they so choose. Every new country that nuclear technology or information is spread to exponentially increases the risk of material being stolen, given to a third party or being used as the launching point for a weapons program. China’s history of proliferation and willingness to engage economically with very unsavory governments seems likely to increase the risks involving nuclear material.

#### U.S. leadership in Asia solves multiple scenarios for war

Goh 8

(Evelyn, Lecturer in International Relations in the Department of Politics and International Relations at the Univ of Oxford, International Relations of the Asia-Pacific, “Hierarchy and the role of the United States in the East Asian security order,” 2008 8(3):353-377, Oxford Journals Database)

This is the main structural dilemma: as long as the United States does not give up its primary position in the Asian regional hierarchy, China is very unlikely to act in a way that will provide comforting answers to the two questions. Yet, the East Asian regional order has been and still is constituted by US hegemony, and to change that could be extremely disruptive and may lead to regional actors acting in highly destabilizing ways. Rapid Japanese remilitarization, armed conflict across the Taiwan Straits, Indian nuclear brinksmanship directed toward Pakistan, or a highly destabilized Korean peninsula are all illustrative of potential regional disruptions. 5 Conclusion To construct a coherent account of East Asia’s evolving security order, I have suggested that the United States is the central force in constituting regional stability and order. The major patterns of equilibrium and turbulence in the region since 1945 can be explained by the relative stability of the US position at the top of the regional hierarchy, with periods of greatest insecurity being correlated with greatest uncertainty over the American commitment to managing regional order. Furthermore, relationships of hierarchical assurance and hierarchical deference explain the unusual character of regional order in the post-Cold War era. However, the greatest contemporary challenge to East Asian order is the potential conflict between China and the United States over rank ordering in the regional hierarchy, a contest made more potent because of the intertwining of regional and global security concerns. Ultimately, though, investigating such questions of positionality requires conceptual lenses that go beyond basic material factors because it entails social and normative questions. How can China be brought more into a leadership position, while being persuaded to buy into shared strategic interests and constrain its own in ways that its vision of regional and global security may eventually be reconciled with that of the United States and other regional players? How can Washington be persuaded that its central position in the hierarchy must be ultimately shared in ways yet to be determined? The future of the East Asian security order is tightly bound up with the durability of the United States’ global leadership and regional domination. At the regional level, the main scenarios of disruption are an outright Chinese challenge to US leadership, or the defection of key US allies, particularly Japan. Recent history suggests, and the preceding analysis has shown, that challenges to or defections from US leadership will come at junctures where it appears that the US commitment to the region is in doubt, which in turn destabilizes the hierarchical order. At the global level, American geopolitical over-extension will be the key cause of change. This is the one factor that Hierarchy and the role of the United States in the East Asian security order 373lead to both greater regional and global turbulence, if only by the attendant strategic uncertainly triggering off regional challenges or defections. However, it is notoriously difficult to gauge thresholds of over-extension. More positively, East Asia is a region that has adjusted to previous periods of uncertainty about US primacy. Arguably, the regional consensus over the United States as primary state in a system of benign hierarchy could accommodate a shifting of the strategic burden to US allies like Japan and Australia as a means of systemic preservation. The alternatives that could surface as a result of not doing so would appear to be much worse.

#### Asian wars go nuclear

Landy 2k

 National Security Expert @ Knight Ridder, 3/10

(Jonathan, Knight Ridder, lexis)

Few if any experts think China and Taiwan, North Korea and South Korea, or India and Pakistan are spoiling to fight. But even a minor miscalculation by any of them could destabilize Asia, jolt the global economy and even start a nuclear war. India, Pakistan and China all have nuclear weapons, and North Korea may have a few, too. Asia lacks the kinds of organizations, negotiations and diplomatic relationships that helped keep an uneasy peace for five decades in Cold War Europe. “Nowhere else on Earth are the stakes as high and relationships so fragile,” said Bates Gill, director of northeast Asian policy studies at the Brookings Institution, a Washington think tank. “We see the convergence of great power interest overlaid with lingering confrontations with no institutionalized security mechanism in place. There are elements for potential disaster.” In an effort to cool the region’s tempers, President Clinton, Defense Secretary William S. Cohen and National Security Adviser Samuel R. Berger all will hopscotch Asia’s capitals this month. For America, the stakes could hardly be higher. There are 100,000 U.S. troops in Asia committed to defending Taiwan, Japan and South Korea, and the United States would instantly become embroiled if Beijing moved against Taiwan or North Korea attacked South Korea. While Washington has no defense commitments to either India or Pakistan, a conflict between the two could end the global taboo against using nuclear weapons and demolish the already shaky international nonproliferation regime. In addition, globalization has made a stable Asia \_ with its massive markets, cheap labor, exports and resources \_ indispensable to the U.S. economy. Numerous U.S. firms and millions of American jobs depend on trade with Asia that totaled $600 billion last year, according to the Commerce Department.

#### China will risk military conflict by asserting hege in the South China Sea. US leadership is key to solve

Dillon ‘11

[Dana R. Dillon is the author of The China Challenge (2007) and a frequent commentator on Asian and national security issues; non-staff member at the Heritage foundation. “Countering Beijing in the South China Sea.” Policy Review #167, The Hoover Institution @ Stanford University. <http://www.hoover.org/publications/policy-review/article/79931> ETB]

The most dangerous source of instability in Asia is a rising China seeking to reassert itself, and the place China is most likely to risk a military conflict is the South China Sea. In the second decade of the 21st century, the seldom-calm waters of the South China Sea are frothing from a combination of competing naval exercises and superheated rhetoric. Many pundits, politicians, and admirals see the South China Sea as a place of future competition between powers.¶ Speculation about impending frictions started at the July 2010 asean Regional Forum (arf) when U.S. Secretary of State Hillary Clinton delivered an overdue statement on American interests in the South China Sea. Clinton averred that the United States has a national interest in freedom of navigation in the South China Sea; that the U.S. supported a collaborative process in resolving the territorial disputes there; and that the U.S. supports the 2002 asean-China declaration on the conduct of parties in the South China Sea.¶ Despite Clinton’s statement of support for China’s own agreements with the Association of Southeast Asian Nations, China’s Foreign Ministry responded negatively, claiming that the secretary’s statement was “virtually an attack on China.” China’s military stated that it was opposed to “internationalization” of the six-country dispute and commenced a new and unusually large naval exercise in South China Sea the very next week.¶ This gathering maritime confrontation is instigated by China’s assertions of sovereignty over the entire South China Sea and its stated intention to enforce that sovereignty. But the source of China’s hubris is its view of its historic mandate to rule all under heaven. Extending China’s borders a thousand miles across the South China Sea is only one policy manifestation of this vision of a new Chinese world order. Consistent with its Sinocentric ideology, Beijing believes its authority over its smaller neighbors should include determining their foreign policy. After Clinton challenged China’s claim to the entire South China Sea, China’s foreign minister reportedly glared at a Singaporean diplomat and pronounced, “China is a big country and other countries are small countries, and that’s just a fact.”1 More telling of China’s opinion of its position among nations, the following Monday China’s Foreign Ministry posted a statement that “China’s view represented the interests of ‘fellow Asians.’”¶ The competing territorial claims in the South China Sea are decades old, but today the Chinese government is full of a sense of accomplishment and the People’s Liberation Army is flush with the fastest growing military budget in the world. Clinton’s statement may have been inspired by earlier statements by Clinton’s Chinese counterpart, the state councilor responsible for foreign affairs, Dai Bingguo, directly to Clinton herself and repeated to several U.S. aides that the enforcement of China’s sovereignty over the South China Sea was a “core interest” on par with Taiwan and Tibet. While Dai Bingguo reportedly has desisted from using the term “core interest” to describe China’s maritime sovereignty, personalities in China’s military still do. In January 2011 the web site of the People’s Daily, the official organ of the Chinese Communist party, surveyed readers about whether the South China Sea is China’s “core interest”; 97 percent of nearly 4,300 respondents said yes.2¶ Short of a shooting war, protecting freedom of navigation in one of the globe’s busiest sea lanes requires an amicable resolution of the competing territorial claims. Starting a process to resolve or neutralize the problem will require American leadership and resolve. Firm diplomacy backed by convincing naval power and patient leadership can strike a balance in the region that protects freedom of navigation, the integrity of international law, and the independence and sovereignty of Southeast Asia’s nations.¶ The worst solution to the South China Sea dispute from the U.S. point of view would be for China’s asean neighbors simply to acquiesce to Beijing’s position and for the entire South China Sea to become the sovereign territory of the People’s Republic of China (prc). The Beijing position is also the worst solution for the asean and every other trading nation on the planet. But an almost as bad solution is for the U.S. to become involved in a bilateral confrontation with China without the firm endorsement and commitment to American actions by the other littoral claimants and by America’s Asia-Pacific allies. Without the support of regional alliances, the U.S. would be entangled in a campaign at the far end of its logistical tail but deep inside the reach of a large and rising power.

#### High tensions make compromise unlikely- US leadership is key to forcing multilateral agreement

Clayton 8/24/12

[Marquis Clayton is a Research Assistant at the East-West Center in Washington. “Uncomfortable Truths: Breaking the Impasse in the South China Sea.” Asia Pacific Bulletin #178. ETB]

¶ The final uncomfortable truth is that historical animosities and increasingly emotional¶ resource nationalism are likely to make the situation worse, possibly much worse, before¶ it gets better. The primary reason is that political leaders in the claimant countries have¶ little incentive or capability to undertake the types of compromise which would be¶ required to resolve the disputes. In the Philippines, President Benigno Aquino has¶ staked out a much tougher stance on South China Sea issues than his predecessor’s¶ policies which he saw as weak and encouraging Chinese aggression. In the aftermath of¶ the incidents last year at Reed Bank and this year at both Scarborough and Half Moon¶ Shoals, he is unlikely to begin promoting a more conciliatory approach.¶ In Vietnam, public protests and opposition to concessions on territorial and sovereignty¶ disputes with China leave its leaders very little room to maneuver. Considering the¶ history of conflict between the two nations and recent disputes over arrests and¶ detentions of fishermen as well as drilling rights in contested areas, it is unlikely that¶ such public sentiment will be easy to reduce.¶ In China, the national leadership will be undergoing a major change for the first time in¶ a decade. The new incoming party secretary and president, Xi Jinping, will seek to¶ consolidate his power and is unlikely to make one of his first foreign policy initiatives a¶ weakening of China’s claims of sovereignty in the South China Sea, a move which¶ would face stiff opposition from the military and public. In short, without substantial¶ outside pressure to do so, claimant countries are not likely to soften their stances or¶ undertake major initiatives to improve the situation.¶ The United States is the only country with the ability to break this impasse. It is the only¶ party with the diplomatic, economic and military influence in the region to alter the¶ status quo in a positive manner as ASEAN has proven incapable of doing so, while¶ China has shown itself unwilling to do so. This means the United States must go even¶ further than it already has in laying out its interests in the future regional order and¶ guiding the various claimants through facing these uncomfortable truths and modifying¶ their current approaches to resolving the disputes. Other specific measures will include¶ increasing efforts to improve the capabilities of the Filipino and Vietnamese armed¶ forces to patrol and monitor their maritime peripheries.

#### Territorial disputes snowball- causes nuclear conflict

Chakraborty 10

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The first ASEAN Defence Ministers Meeting Plus Eight (China, India, Japan, South Korea, Australia, New Zealand, Russia and the USA) was held on the 12th of October. When this frame work of ADMM Plus Eight came into news for the first time it was seen as a development which could be the initiating step to a much needed security architecture in the Asia Pacific. Asia Pacific is fast emerging as the economic center of the world, consequently securing of vulnerable economic assets has becomes mandatory. The source of threat to economic assets is basically unconventional in nature like natural disasters, terrorism and maritime piracy. This coupled with the conventional security threats and flashpoints based on territorial disputes and political differences are very much a part of the region posing a major security challenge.¶ As mentioned ADMM Plus Eight can be seen as the first initiative on such a large scale where the security concerns of the region can be discussed and areas of cooperation can be explored to keep the threats at bay. The defence ministers of the ten ASEAN nations and the eight extra regional countries (Plus Eight) during the meeting have committed to cooperation and dialogue to counter insecurity in the region. One of the major reasons for initiation of such a framework has been the new face of threat which is non-conventional and transnational which makes it very difficult for an actor to deal with it in isolation. Threats related to violent extremism, maritime security, vulnerability of SLOCs, transnational crimes have a direct and indirect bearing on the path of economic growth. Apart from this the existence of territorial disputes especially on the maritime front plus the issues related to political differences, rise of China and dispute on the Korean Peninsula has aggravated the security dilemma in the region giving rise to areas of potential conflict. This can be seen as a more of a conventional threat to the region.¶ The question here is that how far this ADMM Plus Eight can go to address the conventional security threats or is it an initiative which would be confined to meetings and passing resolution and playing second fiddle to the ASEAN summit. It is very important to realize that when one is talking about effective security architecture for the Asia Pacific one has to talk in terms of addressing the conventional issues like the territorial and political disputes. These issues serve as bigger flashpoint which can snowball into a major conflict which has the possibility of turning into a nuclear conflict.

#### Risk of conflict is high- miscalc triggers escalation and US gets drawn in

Glaser ‘12

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The risk of conflict in the South China Sea is significant. China, Taiwan, Vietnam, Malaysia, Brunei, and the Philippines have competing territorial and jurisdictional claims, particularly over rights to exploit the region's possibly extensive reserves of oil and gas. Freedom of navigation in the region is also a contentious issue, especially between the United States and China over the right of U.S. military vessels to operate in China's two-hundred-mile exclusive economic zone (EEZ). These tensions are shaping—and being shaped by—rising apprehensions about the growth of China's military power and its regional intentions. China has embarked on a substantial modernization of its maritime paramilitary forces as well as naval capabilities to enforce its sovereignty and jurisdiction claims by force if necessary. At the same time, it is developing capabilities that would put U.S. forces in the region at risk in a conflict, thus potentially denying access to the U.S. Navy in the western Pacific.¶ Given the growing importance of the U.S.-China relationship, and the Asia-Pacific region more generally, to the global economy, the United States has a major interest in preventing any one of the various disputes in the South China Sea from escalating militarily.¶ The Contingencies¶ Of the many conceivable contingencies involving an armed clash in the South China Sea, three especially threaten U.S. interests and could potentially prompt the United States to use force.¶ The most likely and dangerous contingency is a clash stemming from U.S. military operations within China's EEZ that provokes an armed Chinese response. The United States holds that nothing in the United Nations Convention on the Law of the Sea (UNCLOS) or state practice negates the right of military forces of all nations to conduct military activities in EEZs without coastal state notice or consent. China insists that reconnaissance activities undertaken without prior notification and without permission of the coastal state violate Chinese domestic law and international law. China routinely intercepts U.S. reconnaissance flights conducted in its EEZ and periodically does so in aggressive ways that increase the risk of an accident similar to the April 2001 collision of a U.S. EP-3 reconnaissance plane and a Chinese F-8 fighter jet near Hainan Island. A comparable maritime incident could be triggered by Chinese vessels harassing a U.S. Navy surveillance ship operating in its EEZ, such as occurred in the 2009 incidents involving the USNS Impeccable and the USNS Victorious. The large growth of Chinese submarines has also increased the danger of an incident, such as when a Chinese submarine collided with a U.S. destroyer's towed sonar array in June 2009. Since neither U.S. reconnaissance aircraft nor ocean surveillance vessels are armed, the United States might respond to dangerous behavior by Chinese planes or ships by dispatching armed escorts. A miscalculation or misunderstanding could then result in a deadly exchange of fire, leading to further military escalation and precipitating a major political crisis. Rising U.S.-China mistrust and intensifying bilateral strategic competition would likely make managing such a crisis more difficult.¶ A second contingency involves conflict between China and the Philippines over natural gas deposits, especially in the disputed area of Reed Bank, located eighty nautical miles from Palawan. Oil survey ships operating in Reed Bank under contract have increasingly been harassed by Chinese vessels. Reportedly, the United Kingdom-based Forum Energy plans to start drilling for gas in Reed Bank this year, which could provoke an aggressive Chinese response. Forum Energy is only one of fifteen exploration contracts that Manila intends to offer over the next few years for offshore exploration near Palawan Island. Reed Bank is a red line for the Philippines, so this contingency could quickly escalate to violence if China intervened to halt the drilling.¶ The United States could be drawn into a China-Philippines conflict because of its 1951 Mutual Defense Treaty with the Philippines. The treaty states, "Each Party recognizes that an armed attack in the Pacific Area on either of the Parties would be dangerous to its own peace and safety and declares that it would act to meet the common dangers in accordance with its constitutional processes." American officials insist that Washington does not take sides in the territorial dispute in the South China Sea and refuse to comment on how the United States might respond to Chinese aggression in contested waters. Nevertheless, an apparent gap exists between American views of U.S. obligations and Manila's expectations. In mid-June 2011, a Filipino presidential spokesperson stated that in the event of armed conflict with China, Manila expected the United States would come to its aid. Statements by senior U.S. officials may have inadvertently led Manila to conclude that the United States would provide military assistance if China attacked Filipino forces in the disputed Spratly Islands.¶ With improving political and military ties between Manila and Washington, including a pending agreement to expand U.S. access to Filipino ports and airfields to refuel and service its warships and planes, the United States would have a great deal at stake in a China-Philippines contingency. Failure to respond would not only set back U.S. relations with the Philippines but would also potentially undermine U.S. credibility in the region with its allies and partners more broadly. A U.S. decision to dispatch naval ships to the area, however, would risk a U.S.-China naval confrontation.¶ Disputes between China and Vietnam over seismic surveys or drilling for oil and gas could also trigger an armed clash for a third contingency. China has harassed PetroVietnam oil survey ships in the past that were searching for oil and gas deposits in Vietnam's EEZ. In 2011, Hanoi accused China of deliberately severing the cables of an oil and gas survey vessel in two separate instances. Although the Vietnamese did not respond with force, they did not back down and Hanoi pledged to continue its efforts to exploit new fields despite warnings from Beijing. Budding U.S.-Vietnam relations could embolden Hanoi to be more confrontational with China on the South China Sea issue.¶ The United States could be drawn into a conflict between China and Vietnam, though that is less likely than a clash between China and the Philippines. In a scenario of Chinese provocation, the United States might opt to dispatch naval vessels to the area to signal its interest in regional peace and stability. Vietnam, and possibly other nations, could also request U.S. assistance in such circumstances. Should the United States become involved, subsequent actions by China or a miscalculation among the forces present could result in exchange of fire. In another possible scenario, an attack by China on vessels or rigs operated by an American company exploring or drilling for hydrocarbons could quickly involve the United States, especially if American lives were endangered or lost. ExxonMobil has plans to conduct exploratory drilling off Vietnam, making this an existential danger. In the short term, however, the likelihood of this third contingency occurring is relatively low given the recent thaw in Sino-Vietnamese relations. In October 2011, China and Vietnam signed an agreement outlining principles for resolving maritime issues. The effectiveness of this agreement remains to be seen, but for now tensions appear to be defused.¶ Warning Indicators¶ Strategic warning signals that indicate heightened risk of conflict include political decisions and statements by senior officials, official and unofficial media reports, and logistical changes and equipment modifications. In the contingencies described above, strategic warning indicators could include heightened rhetoric from all or some disputants regarding their territorial and strategic interests. For example, China may explicitly refer to the South China Sea as a core interest; in 2010 Beijing hinted this was the case but subsequently backed away from the assertion. Beijing might also warn that it cannot "stand idly by" as countries nibble away at Chinese territory, a formulation that in the past has often signaled willingness to use force. Commentaries and editorials in authoritative media outlets expressing China's bottom line and issuing ultimatums could also be a warning indicator. Tough language could also be used by senior People's Liberation Army (PLA) officers in meetings with their American counterparts. An increase in nationalistic rhetoric in nonauthoritative media and in Chinese blogs, even if not representing official Chinese policy, would nevertheless signal pressure on the Chinese leadership to defend Chinese interests. Similar warning indicators should be tracked in Vietnam and the Philippines that might signal a hardening of those countries' positions.¶ Tactical warning signals that indicate heightened risk of a potential clash in a specific time and place include commercial notices and preparations, diplomatic and/or military statements warning another claimant to cease provocative activities or suffer the consequences, military exercises designed to intimidate another claimant, and ship movements to disputed areas. As for an impending incident regarding U.S. surveillance activities, statements and unusual preparations by the PLA might suggest a greater willingness to employ more aggressive means to intercept U.S. ships and aircraft.

#### US-China war goes nuclear

Lee J. Hunkovic **--** professor at American Military University, 09, [“The Chinese-Taiwanese Conflict Possible Futures of a Confrontation between China, Taiwan and the United States of America”, American Military University, p.54]

A war between China, Taiwan and the United States has the potential to escalate into a nuclear conflict and a third world war, therefore, many countries other than the primary actors could be affected by such a conflict, including Japan, both Koreas, Russia, Australia, India and Great Britain, if they were drawn into the war, as well as all other countries in the world that participate in the global economy, in which the United States and China are the two most dominant members. If China were able to successfully annex Taiwan, the possibility exists that they could then plan to attack Japan and begin a policy of aggressive expansionism in East and Southeast Asia, as well as the Pacific and even into India, which could in turn create an international standoff and deployment of military forces to contain the threat. In any case, if China and the United States engage in a full-scale conflict, there are few countries in the world that will not be economically and/or militarily affected by it. However, China, Taiwan and United States are the primary actors in this scenario, whose actions will determine its eventual outcome, therefore, other countries will not be considered in this study.

### Solvency

#### DoD acquisition of SMR’s ensures rapid military adoption, commercialization, and U.S. leadership

Andres and Breetz 11

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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 [FOOTNOTE 29: There are numerous actions that the Federal Government could take, such as conducting or funding research and development, stimulating private investment, demonstrating technology, mandating adoption, and guaranteeing markets. Military procurement is thus only one option, but it has often played a decisive role in technology development and is likely to be the catalyst for the U.S. small reactor industry. See Vernon W. Ruttan, Is War Necessary for Economic Growth? (New York: Oxford University Press, 2006); Kira R. Fabrizio and David C. Mowery, “The Federal Role in Financing Major Inventions: Information Technology during the Postwar Period,” in Financing Innovation in the United States, 1870 to the Present, ed. Naomi R. Lamoreaux and Kenneth L. Sokoloff (Cambridge, MA: The MIT Press, 2007), 283–316.] 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. Domestic Nuclear Expertise. From the perspective of larger national security issues, if DOD does not catalyze the small reactor industry, there is a risk that expertise in small reactors could become dominated by foreign companies. A 2008 Defense Intelligence Agency report warned that the United States will become totally dependent on foreign governments for future commercial nuclear power unless the military acts as the prime mover to reinvigorate this critical energy technology with small, distributed power reactors.38 Several of the most prominent small reactor concepts rely on technologies perfected at Federally funded laboratories and research programs, including the Hyperion Power Module (Los Alamos National Laboratory), NuScale (DOE-sponsored research at Oregon State University), IRIS (initiated as a DOE-sponsored project), Small and Transportable Reactor (Lawrence Livermore National Laboratory), and Small, Sealed, Transportable, Autonomous Reactor (developed by a team including the Argonne, Lawrence Livermore, and Los Alamos National Laboratories). However, there are scores of competing designs under development from over a dozen countries. If DOD does not act early to support the U.S. small reactor industry, there is a chance that the industry could be dominated by foreign companies. Along with other negative consequences, the decline of the U.S. nuclear industry decreases the NRC’s influence on the technology that supplies the world’s rapidly expanding demand for nuclear energy. Unless U.S. companies begin to retake global market share, in coming decades France, China, South Korea, and Russia will dictate standards on nuclear reactor reliability, performance, and proliferation resistance.

#### Military procurement solves commercial use and avoids regulations

Andres and Loudermilk 10

(Richard B. Andres, 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, Micah J, Research Associate for the Energy & Environmental Security Policy program with the Institute for National Strategic Studies at National Defense University, “Small Reactors and the Military’s Role in Securing America’s Nuclear IndustryPosted” <http://robertmayer.wordpress.com/2010/08/28/small-reactors-and-the-militarys-role-in-securing-americas-nuclear-industryposted/>, SEH)

Unlike private industry, the military does not face the same regulatory and congressional hurdles to constructing reactors and would have an easier time in adopting them for use. By integrating small nuclear reactors as power sources for domestic U.S. military bases, three potential energy dilemmas are solved at the same time. First, by incorporating small reactors at its bases, the military addresses its own energy security quandary. The military has recently sought to “island” its bases in the U.S. -protecting them from grid outages, be they accidental or intentional. The Department of Defense has promoted this endeavor through lowering energy consumption on bases and searching for renewable power alternatives, but these measures alone will prove insufficient. Small reactors provide sufficient energy output to power military installations and in some cases surrounding civilian population centers.¶ Secondly, as the reactors become integrated on military facilities, the stigma on the nuclear power industry will ease and inroads will be created for the adoption of small-scale reactors as a viable source of energy. Private industry and the public will see that nuclear reactors can indeed be utilized safely and effectively, resulting in a renewed push toward the expansion of nuclear power. Although many of the same hurdles will still be in place, a shift in public opinion and a stronger effort by utilities, coupled with the demonstrated success of small reactors on military bases, could prove the catalysts necessary for the federal government and the NRC to take more aggressive action.¶ Finally, while new reactors are not likely in the near future, the military’s actions will preserve, for a while longer, the badly ailing domestic nuclear energy industry. Nuclear power is here to stay around the globe, and the United States has an opportunity to take a leading role in supplying the world’s nuclear energy and reactor technology. With the U.S. nuclear industry dormant for three decades, much of the attention, technology, and talent have concentrated overseas in countries with a strong interest in nuclear technology. Without the United States as a player in the nuclear energy market, it has little say over safety regulations of reactors or the potential risks of proliferation from the expansion of nuclear energy. If the current trend continues, the U.S. will reach a point where it is forced to import nuclear technology and reactors from other countries. Action by the military to install reactors on domestic bases will both guarantee the survival of the American nuclear industry in the short term, and work to solidify support for it in the long run.¶ Ultimately, between small-scale nuclear reactors and the U.S. military, the capability exists to revitalize America’s sleeping nuclear industry and promoting energy security and clean energy production. The reactors offer the ability to power domestic military bases, small towns, and other remote locations detached from the energy grid. Furthermore, reactor sites can house multiple units, allowing for greater energy production – rivaling even large reactors. Small reactors offer numerous benefits to the United States and a path initiated by the military presents a realistic route by which their adoption can be achieved.

#### SMRs are cost-effective, safe, and can be quickly deployed

Szondy 12

David, freelance writer based in Monroe, Washington. An award-winning playwright, he has contributed to Charged and iQ magazine and is the author of the website Tales of Future Past, February 16, "Feature: Small modular nuclear reactors - the future of energy?", [www.gizmag.com/small-modular-nuclear-reactors/20860/](http://www.gizmag.com/small-modular-nuclear-reactors/20860/)

One way of getting around many of these problems is through the development of small modular reactors (SMR). These are reactors capable of generating about 300 megawatts of power or less, which is enough to run 45,000 US homes. Though small, SMRs are proper reactors. They are quite different from the radio-thermal generators (RTG) used in spacecraft and remote lighthouses in Siberia. Nuclear reactors such as SMRs use controlled nuclear fission to generate power while RTGs use natural radioactive decay to power a relatively simple thermoelectric generator that can only produce, at most, about two kilowatts.¶ In terms of power, RTGs are the equivalent of batteries while small nuclear reactors are only "small" when compared to conventional reactors. They are hardly the sort that you would keep in the garage. In reality, SMR power plants would cover the area of a small shopping mall. Still, such an installation is not very large as power plants go and a reactor that only produces 300 megawatts may not seem worth the investment, but the US Department of Energy is offering US$452 million in matching grants to develop SMRs and private investors like the Bill Gates Foundation and the company of Babcock and Wilcox are putting up money for their own modular reactor projects.¶ The 60-year old breakthrough¶ One reason for government and private industry to take an interest in SMRs is that they've been successfully employed for much longer than most people realize. In fact, hundreds have been steaming around the world inside the hulls of nuclear submarines and other warships for sixty years. They've also been used in merchant ships, icebreakers and as research and medical isotope reactors at universities. There was even one installed in the Antarctic at McMurdo Station from 1962 to 1972. Now they're being considered for domestic use.¶ The case for SMRs¶ SMRs have a number of advantages over conventional reactors. For one thing, SMRs are cheaper to construct and run. This makes them very attractive to poorer, energy-starved countries; small, growing communities that don't require a full-scale plant; and remote locations such as mines or desalination plants. Part of the reason for this is simply that the reactors are smaller. Another is that, not needing to be custom designed in each case, the reactors can be standardized and some types built in factories that are able to employ economies of scale. The factory-built aspect is also important because a factory is more efficient than on-site construction by as much as eight to one in terms of building time. Factory construction also allows SMRs to be built, delivered to the site, and then returned to the factory for dismantling at the end of their service lives - eliminating a major problem with old conventional reactors, i.e. how to dispose of them.¶ SMRs also enjoy a good deal of design flexibility. Conventional reactors are usually cooled by water - a great deal of water - which means that the reactors need to be situated near rivers or coastlines. SMRs, on the other hand, can be cooled by air, gas, low-melting point metals or salt. This means that SMRs can be placed in remote, inland areas where it isn't possible to site conventional reactors.¶ Safety¶ This cooling system is often passive. In other words, it relies more on the natural circulation of the cooling medium within the reactor's containment flask than on pumps. This passive cooling is one of the ways that SMRs can improve safety. Because modular reactors are smaller than conventional ones, they contain less fuel. This means that there's less of a mass to be affected if an accident occurs. If one does happen, there's less radioactive material that can be released into the environment and makes it easier to design emergency systems. Since they are smaller and use less fuel, they are easier to cool effectively, which greatly reduces the likelihood of a catastrophic accident or meltdown in the first place.¶ This also means that accidents proceed much slower in modular reactors than in conventional ones. Where the latter need accident responses in a matter of hours or minutes, SMRs can be responded to in hours or days, which reduces the chances of an accident resulting in major damage to the reactor elements.¶ The SMR designs that reject water cooling in favor of gas, metal or salt have their own safety advantages. Unlike water-cooled reactors, these media operate at a lower pressure. One of the hazards of water cooling is that a cracked pipe or a damaged seal can blow radioactive gases out like anti-freeze out of an overheated car radiator. With low-pressure media, there's less force to push gases out and there's less stress placed on the containment vessel. It also eliminates one of the frightening episodes of the Fukushima accident where the water in the vessel broke down into hydrogen and oxygen and then exploded.¶ Another advantage of modular design is that some SMRs are small enough to be installed below ground. That is cheaper, faster to construct and less invasive than building a reinforced concrete containment dome. There is also the point that putting a reactor in the ground makes it less vulnerable to earthquakes. Underground installations make modular reactors easier to secure and install in a much smaller footprint. This makes SMRs particularly attractive to military customers who need to build power plants for bases quickly. Underground installation also enhances security with fewer sophisticated systems needed, which also helps bring down costs.¶ SMRs can help with proliferation, nuclear waste and fuel supply issues because, while some modular reactors are based on conventional pressurized water reactors and burn enhanced uranium, others use less conventional fuels. Some, for example, can generate power from what is now regarded as "waste", burning depleted uranium and plutonium left over from conventional reactors. Depleted uranium is basically U-238 from which the fissible U-235 has been consumed. It's also much more abundant in nature than U-235, which has the potential of providing the world with energy for thousands of years. Other reactor designs don't even use uranium. Instead, they use thorium. This fuel is also incredibly abundant, is easy to process for use as fuel and has the added bonus of being utterly useless for making weapons, so it can provide power even to areas where security concerns have been raised.¶ But there's still the sticking point that modular reactors are, by definition, small. That may be fine for a submarine or the South Pole, but what about places that need more? Is the alternative conventional nuclear plants? It turns out that the answer is no. Modular reactors don't need to be used singly. They can be set up in batteries of five or six or even more, providing as much power as an area needs. And if one unit needs to be taken off line for repairs or even replacement, it needn't interfere with the operation of the others.

#### DOD has engineers just hired 700 nuclear engineers and new projects spark interest

Wheeler 10/12

(Brian graduated from Northeastern State University in Tahlequah, Okla., in 2005 with a Bachelor’s degree in Mass Communication. He majored in Journalism and minored in Speech Communication. Since graduation, Brian has worked as a newspaper reporter, a magazine freelance writer and most recently as a television news photojournalist and web reporter. Working in television taught Brian how to complete stories in a short time span with breaking news occurring daily. After three years in T.V. news, he joined the PennWell publishing team in March 2010.¶ Brian serves as Editor of Nuclear Power International and Senior Editor of Power Engineering. He also serves as a committee member for the Nuclear Power International Conference and Exhibition and COAL-GEN. “Special Report: Nuclear Power Executive Roundtable” Oct 12, 2012 <http://www.power-eng.com/articles/2012/10/special-report-nuclear-power-executive-roundtable.html>, TSW)

Cheri also mentioned the Navy agreement signed in August in Atlanta. I just got an email stating that 11 officers coming out of the Navy are looking for jobs in the nuclear industry. That’s the first of many, I believe to facilitate the workforce development in our industry.¶ Ashley: We have actually seen a definite resurgence of interest in the nuclear industry. That, and our workload has enabled us to hire about 700 engineers to support our nuclear business line over the past two years. About 25 percent of those were college hires. It wasn’t that long ago when we couldn’t really interest a college hire to come into the nuclear industry. That has changed.¶ There is a strong interest in terms of young engineers taking a more active role in the nuclear industry. At Bechtel, we have over 250 active members in North America Young Generation Nuclear. Those are mostly young engineers and professional under the age of 35. It is very active, and we see that as a developing group that is going to be the future of our industry. In June, we hosted a conference for the Mid-Atlantic region of NAYGN that included about 20 different chapters. Individuals from various companies came to Bechtel Power’s Frederick, Md. office, and participated on their own time. It started Friday night and it was over the weekend. That shows the enthusiasm that this group has for commercial nuclear. I am very optimistic that if we can keep them interested, we can build the next generation of engineers.¶ We also have nearly 200 members of Women in Nuclear and, once again, that shows the diversity of nuclear engineers and gives me reason for optimism. That is one of Bechtel’s strongest missions: preparing the future

#### Nuclear power is inevitable

IAEA applications

Middle class

Population growth

Urbanization

Warming

Desal

Ebinger and Squassoni 11

Charles K Ebinger and Sharon Squassoni 11, Charles is senior fellow and director of the Energy Security Initiative at the Brookings Institution, Sharon is senior fellow and director of the Proliferation Prevention Program at the Center for Strategic and International Studies, “Industry and Emerging Nuclear Energy Markets” in “Business and Nonproliferation”, googlebooks

As mentioned previously, a notable feature of the nuclear renaissance is the widespread interest in nuclear power, especially in countries without a commercial nuclear infrastructure. According to the International Atomic Energy Agency (IAEA), at least sixty-five countries have expressed such interest, most from outside the industrialized economies of the Organization of Economic Cooperation and Development (OECD), the main locus of nuclear power capacity at present. Most of the capacity growth up to 2030 is expected to occur in the Middle East, South Asia, Southeast Asia, and the Far East. As part of this growth, eleven developing countries are serious candidates for first reactors, although progress in carrying out their plans varies widely (see table 4-1). These countries are drawing new suppliers into the nuclear market (notably China, India, and South Korea) and sparking activity among existing suppliers such as Russia and Japan. Overall, however, many countries will not be able to follow through on growth plans owing to cost, limited grid capacity, and perhaps public resistance. Countries are moving toward nuclear energy, not the mention other sources of primary fuel, in large part because of mounting demand: between 2008 and 2035 global electricity consumption is expected to increase 80 percent, and 80 percent of that growth will take place in non-OECD countries. Underlying this large increase in electricity demand are population growth, urbanization, concerns about CO2 emissions from fossil fuel combustion, energy security, and pressure from a growing middle class for goods and services using or produced by electricity. Over this period, global population will rise from 6.7 billion to 8.5 billion, with 7.2 billion of the total living in non-OECD countries. Most of this increase will take place in China, India, and the Middle East, with the balance in the rest of the developing world, while the share of the global population in the OECD and Russia will decline. Today nearly 1.4 billion people have no electricity, a figure that may well increase with further population growth, despite movement into the modern energy economy. Urbanization will undoubtedly push demand up as well. For the first time in history, a majority of the world’s population is living in urban areas, a trend likely to continue, especially in developing countries. With the movement of hundreds of millions of people from rural areas to cities, more communities will turn from traditional and often free fuels (wood, forest residues, agricultural wastes, bagasse, and dung) to modern fuels such as electricity, natural gas, and petroleum products. The dramatic growth of the middle class in a number of emerging market nations is also having a large impact on energy consumption. The World Bank predicts that by 2030 the middle class in these nations will jump to 1.2 billion from 430 million in 2000. It is estimated that in India alone, a country that before Fukushima was developing plans for nuclear power, the number of households with an annual disposal income of $5,000-$15,000 will increase from 36 percent of the population in 2010 to more than 58 percent by 2020. Climate change, too, will have some of its largest impact in developing countries, which, according to the International Energy Agency (IEA), will be responsible for nearly all of the projected global increase in CO2 emissions by 2035. In large part, the cause of this rise is coal-fired power in China and India. The urgency of finding alternatives to coal is recognized by others as well, including Indonesia, Pakistan, Poland, South Africa, and Russia. Compared with developed countries, developing nations rely far more on imported fossil fuels, especially oil, to generate power. When the price of oil on the world market rose to $147 a barrel in 2008, it became clear that dependence on imported fossil fuels for electricity generation can destroy a nation’s economy and that fuel diversification is vital for energy security. As prices climbed beyond $100 a barrel, Jordan, a country committed to introducing civilian nuclear energy, was particularly hard hit: 99 percent of its electricity is generated from either oil or gas, 96 percent of which is imported. Developing countries also see nuclear energy as a possible source of power for desalination plants, especially in the Gulf Cooperation Council (GCC) countries and elsewhere in the Middle East. As the demand for freshwater supplies increases – along with the emphasis on limited the use of fossil fuels to generates electricity because of the impact of emissions, price volatility, and supply disruptions – the nuclear option will be considered even more viable. Moreover, some countries with large resources of oil or gas, such as the United Arab Emirates (UAE) and Saudi Arabia, are hoping nuclear power will help reduce their domestic use of these fuels in generating power and will boost the financial benefits of exporting them. For some developing countries, status and geopolitics are undoubtedly important factors in considering the development or expansion of a civilian nuclear energy program. In the view of Turkey’s energy minister Hilmi Guler, for instance, nuclear technology is a requirement for a seat at the table with the ten most developed countries in the world.

#### Obama has pushed SMR policy

Kramer ‘12

(David J. Kramer was educated at Tufts University, receiving his B.A. in Soviet Studies and Political Science, and then at Harvard University, receiving his M.A. in Soviet Studies. “Romney, Obama surrogates spell out candidates’ energy policies” September 2012 Accessed online at http://www.physicstoday.org/resource/1/phtoad/v65/i9/p20\_s10, TSW)

The Obama administration’s support for nuclear power is evident from the $7 billion loan guarantee from DOE to back construction of two new reactors at an existing nuclear power plant in Georgia, Reicher noted. “There’s serious money going into small modular reactors and serious policy work going on in how to reform the licensing process” at the Nuclear Regulatory Commission to expedite approval.

#### Current manufacturing capability can switch to SMR

U.S. Department of Commerce International Trade Administration ‘11

(“The Commercial Outlook for¶ U.S. Small Modular Nuclear¶ Reactors” <http://www.trade.gov/publications/pdfs/the-commercial-outlook-for-us-small-modular-nuclear-reactors.pdf>, SEH)

Impact of SMRs on U.S. Job ¶ Creation¶ **A serious obstacle to the resurgence of traditional** ¶ **nuclear power in the United States is the eroded** ¶ **domestic manufacturing capacity for the major** ¶ **nuclear components. A robust program of building SMRs, however, could make use of existing** ¶ **domestic capacity that is already capable of completely constructing most proposed SMR designs.** ¶ **SMRs would not require the ultra-heavy forgings** ¶ **that currently can only be made overseas**. **U.S.** ¶ **suppliers say that firms could retool using existing** ¶ **capabilities and resources and could source most** ¶ **of the components of SMRs here in the United** ¶ **States**. This ability could mean tremendous new ¶ commercial opportunities for U.S. firms and ¶ workers. ¶ **A substantial SMR deployment program in the** ¶ **United States could result in the creation of many** ¶ **new jobs in manufacturing, engineering, transportation, construction (f**or site preparation and ¶ installation) and craft labor, professional services, ¶ and ongoing plant operations. As SMR manufacturers prove their designs in the domestic market, ¶ they will likely consider export opportunities. The ¶ modular nature of SMRs and their relative portability means that locating export-oriented SMR ¶ manufacturing and assembly could make sense ¶ for U.S. companies, as opposed to the localization that is typically necessary for building larger ¶ reactors.

#### Natural gas isn’t a solvency take out

Lamonica 12

Martin Lamonica is a senior writer covering green tech and cutting-edge technologies [August 9, 2012, “A Glut of Natural Gas Leaves Nuclear Power Stalled,” http://www.technologyreview.com/news/428737/a-glut-of-natural-gas-leaves-nuclear-power/]

Outside the United States, it's a different story. Unconventional sources of natural gas also threaten the expansion of nuclear, although the potential impact is less clear-cut. Around the world, there are 70 plants now under construction, but shale gas also looms as a key factor in planning for the future. Prices for natural gas are already higher in Asia and Europe, and shale gas resources are not as fully developed as they are the United States.¶ Some countries are also blocking the development of new natural gas resources. France, for instance, which has a strong commitment to nuclear, has banned fracking in shale gas exploration because of concerns over the environmental impact.¶ Fast-growing China, meanwhile, needs all the energy sources available and is building nuclear power plants as fast as possible.¶ Even in United States, of course, super cheap natural gas will not last forever. With supply exceeding demand, some drillers are said to be losing money on natural gas, which could push prices back up. Prices will also be pushed upward by utilities, as they come to rely on more natural gas for power generation, says James.¶ Ali Azad, the chief business development officer at energy company Babcock & Wilcox, thinks the answer is making nuclear power smaller, cheaper, and faster. His is one of a handful of companies developing small modular reactors that can be built in three years, rather than 10 or more, for a fraction of the cost of gigawatt-size reactors. Although this technology is not yet commercially proven, the company has a customer in the Tennessee Valley Authority, which expects to have its first unit online in 2021 (see "A Preassembled Nuclear Reactor").¶ "When we arrive, we will have a level cost of energy on the grid, which competes favorably with a brand-new combined-cycle natural gas plants when gas prices are between $6 to $8," said Azad. He sees strong demand in power-hungry China and places such as Saudia Arabia, where power is needed for desalination.¶ Even if natural gas remains cheaper, utilities don't want to find themselves with an overreliance on gas, which has been volatile on price in the past, so nuclear power will still contribute to the energy mix. "[Utilities] still continue [with nuclear] but with a lower level of enthusiasm—it's a hedging strategy," says Hans-Holger Rogner from the Planning and Economics Studies section of the International Atomic Energy Agency. "They don't want to pull all their eggs in one basket because of the new kid on the block called shale gas."¶

# 2AC Block- Same

#### Group the case debate they have concede the factual content of the 1AC and the implications of the hypothetical enactment of the affirmative’s topical plan. Give us a lot of lea weigh explain the affirmative in the 1AR and 2AR, they had the entirety of both cross-x’s to ask about the policy implications of the plan.

#### Our szondy evidence is very good on the question how SMRs can reuse depleted Uranium to not have to increase mining, this solves back for all their oppression arguments SMRs get exported to countries in Asia specifically India means we solve more of an oppressed polulation than their advocacy could.

#### Their American centric arguments turns their advocacy because it marginalizes and ignores other oppression, a historical perspective on the oppression that has occurred in the America ignores,

#### Plan displaces coal – solves pollution

Loudermilk ‘11

(Micah J. Loudermilk is a Research Associate for the Energy & Environmental Security Policy program with the Institute for National Strategic Studies at National Defense University, May 31, 2011, “Small Nuclear Reactors and US Energy Security: Concepts, Capabilities, and Costs,” Journal of Energy Security, <http://www.ensec.org/index.php?option=com_content&view=article&id=314:small-nuclear-reactors-and-us-energy-security-concepts-capabilities-and-costs&catid=116:content0411&Itemid=375>)

Pursuing a carbon-free world Realistically speaking, a world without nuclear power is not a world full of increased renewable usage, but rather, of fossil fuels instead. The 2007 Japanese Kashiwazaki-Kariwa nuclear outage is an excellent example of this, as is Germany’s post-Fukushima decision to shutter its nuclear plants, which, despite immense development of renewable options, will result in a heavier reliance on coal-based power as its reactors are retired, leading to a 4% increase in annual carbon emissions. On the global level, without nuclear power, carbon dioxide emissions from electricity generation would rise nearly 20% from nine to eleven billion tons per year. When examined in conjunction with the fact that an estimated 300,000 people per year die as a result of energy-based pollutants, the appeal of nuclear power expansion grows further.¶ As the world copes simultaneously with burgeoning power demand and the need for clean energy, nuclear power remains the one consistently viable option on the table. With this in mind, it becomes even more imperative to make nuclear energy as safe as possible, as quickly as possible—a capacity which SMRs can fill with their high degree of safety and security. Additionally, due to their modular nature, SMRs can be quickly constructed and deployed widely. While this is not to say that small reactors should supplant large ones, the US would benefit from diversification and expansion of the nation’s nuclear energy portfolio.

#### Coal pollutions destroy African American communities and increase public health diseases

BLF, SOC, GCPA, and Clear Air, 2002. Black Leadership forum- Black leaders to grapple with issues of the deepest significance to African Americans, particularly civil rights and major public policy issues, BLF sponsored two international forums in Durban, South Africa, Today focuses on environmental justice. The Southern Organizing Committee for Economic and Social Justice- SOC was in the vanguard promoting community empowerment, capacity building and grassroots organizing, particularly in the South. Under the leadership of Connie Tucker who has served as the Executive Council of the National Environmental Justice Advisory Council, its Waste and Facility Siting Sub-committee, The Georgia Coalition for The Peoples’ Agenda- an advocacy organization that includes all of the major Civil Rights/Human Rights/Peace & Justice organizations around the state of Georgia. Dr. Joseph E. Lowery is the convener of this coalition. Dr. Joseph E. Lowery is minister in the [United Methodist Church](http://en.wikipedia.org/wiki/United_Methodist_Church) and leader in the [American](http://en.wikipedia.org/wiki/United_States) [civil rights](http://en.wikipedia.org/wiki/American_Civil_Rights_Movement_%281955-1968%29) movement and effectively became Martin Luther King’s Immediate successor , Clear the Air- A joint project of three tasks forces: Clean Air Task Force, National Environmental Trust and U.S. PIRG Education Fund. The Clean Air Task Force is a non-profit organization dedicated to restoring clean air and healthy environments through scientific research, public education and legal advocacy. The National Environmental Trust is a non-profit, non-partisan organization dedicated to applying modern communications and public education techniques to environmental education and advocacy. The U.S. PIRG Education Fund is a nonprofit, nonpartisan organization that conducts independent research, and educates and organizes the public about a wide variety of environmental, consumer and government reform problems. *Air of injustice*. <http://www.catf.us/resources/publications/files/Air_of_Injustice.pdf>

This report chronicles how African Americans are affected by the air pollution emitted by our nation’s biggest polluters: coal-fired power plants. These plants release millions of pounds of a wide variety of chemicals to the air, water and landfills. This report describes the relationship between power plant pollutants like sulfur dioxide, particulate matter, mercury, nitrogen oxides and carbon dioxide and environmental health issues that have the most impact on African Americans: pediatric asthma, infant death rates, emergency room visits and hospitalizations, fish contamination and climate change. African Americans are at risk from power plant pollution. • The air in our communities violates air quality standards. In 2002, 71% of African Americans live in counties that violate federal air pollution standards, compared to 58% of the white population. (1) • Most African Americans live near a power plant. Sixty-eight percent of African Americans live within 30 miles of a coal-fired power plant — the distance within which the maximum effects of the smokestack plume are expected to occur. § Marked 12:07 § By comparison, about 56% of the white population live within 30 miles of a coal-fired power plant. (2) • We are likely to live near a power plant waste site. African Americans account for 17% of the people living within five miles of a power plant waste site. • Asthma attacks send African Americans to the emergency room at three times the rate (174.3 visits per 10,000 population) of whites (59.4 visits per 10,000 population). (3) • African Americans are hospitalized for asthma at more than three times the rate of whites (35.6 admissions per 10,000 population vs. 10.6 admissions per 10,000 population). (3) • The death rate from asthma for African Americans is twice that of whites (38.7 deaths per million population vs. 14.2 deaths per million population (3) . Studies in the U.S. have shown that emergency room visits increase when particulate matter and/or ozone levels are just slightly above national standards. (4,5) • In a comparison of 86 cities in the U.S., researchers found that infants who lived in a highly polluted city during their first two months of life had a higher mortality rate than infants living in the city with the cleanest air. (6) High particulate matter levels markedly increased the risk of SIDS and respiratory mortality. As African Americans live in more polluted areas, this has a significant impact. • One-third of African Americans are avid anglers, and we eat fish more often and in larger portions than whites. Consequently, we have higher exposure to mercury. In 1996, there were 1.8 million licensed African American anglers who spent over $813 million dollars on fishing trips and equipment. (7) • The potential health impacts of climate change include increased prevalence of infectious disease such as Dengue fever and West Nile virus. (8) Since many African Americans lack health insurance and regular medical access, our community is particularly at risk. (9) • A study of the 15 largest U.S. cities found that climate change would increase heat-related deaths by at least 90%. (10) Most African Americans live in inner cities, (11) which tend to be about 10 degrees warmer than their surrounding areas. Studies have shown that People of Color are twice as likely to die in a heat wave, (12) and suffer from more heat-related stress and illness.3 Global warming could enhance ozone formation, which could, in turn, exacerbate ozone-related health problems such as asthma attacks. (13) Power plants are major sources of some of the most common and harmful pollutants. (14) Power plants emit 67% of the sulfur dioxide (SO2 ) in the U.S., a noxious gas that irritates the lungs and worsens asthma, coughing, wheezing, shortness of breath and lung function in general. Power plants are also responsible for 23% of nitrogen oxides (NOx) emissions, which combine with other pollutants in the presence of sunlight to form ozone smog. Exposure to ozone can cause rapid, shallow breathing and related airway irritation, coughing, wheezing, shortness of breath and asthma attacks. Emergency room visits for asthmatic children are strongly linked to ozone levels. These pollutants also form tiny acidic particles (fine particulate matter) that are inhaled deep into the lungs, affecting both the respiratory and cardiovascular systems. Particulate matter levels in the air are strongly associated with asthma attacks. Coal-fired power plants are the largest industrial emitters of mercury, producing over one-third of all mercury pollution in the U.S. (15) The problem is not inhalation of airborne mercury, but rather eating contaminated fish. When mercury-tainted fish are consumed by an expectant mother, the mercury passes through the placenta to the developing fetus. Infants appear normal during the first few months of life, but later display subtle health effects such as poor performance on neurobehavioral tests, particularly on tests of attention, fine motor function, language, visual-spatial abilities (e.g., drawing) and memory. (16) Power plants account for 38% of the most prevalent greenhouse gas, carbon dioxide, emitted from fossil fuel use in the U.S. (17) Changes in the Earth’s temperature and precipitation patterns are occurring due to the buildup of greenhouse gases in the atmosphere. Warming of the planet could induce crop failures, famines, flooding, and other environmental, economic and social problems.

#### Climate change disproportionately effects Native American populations – the aff is key to avoid extermination of their culture and livelihood

USDA. 2011. United States Department of Agriculture. Effects of Climate Change on Natural Resources and Communities: A Compendium of Briefing Papers. March. http://sequoia.fsl.orst.edu/lulcd/Publicationsalpha\_files/Alig\_2011\_gtr837.pdf#page=83

**Native American communities, which are predominantly rural, may face disproportionately higher levels of climate change impacts on their livelihoods, rights and access to natural resources, future growth, and** in some cases, **their culture, which depends on traditional ways of collecting and sharing food** (Hanna 2007, Nilsson 2008, Tsosie 2007, USGCRP 2009). For many indigenous communities, **climate change may also reduce the availability and accessibility of such traditional food sources as seals, whose migration patterns depend on their ability to cross frozen rivers and wetlands** (USGCRP 2009). It is estimated that climate change may increase flooding and erosion in 184 out of 213, or 86 percent, of Native Alaskan communities (USGAO 2003). **Native cultures in the Great Plains and Southwest are also vulnerable to climate change effects. Many of these tribes have limited capacity to respond to climate change and already face severe problems with water quantity and quality—problems likely to be exacerbated by climate change. Relocation options tend to be limited for many Native Americans who live on established reservations and may be restricted to reservation boundaries** (NAST 2001). **Having already been relocated to reservations, these communities have historically been disconnected from their traditional life, prohibited from engaging in important social and cultural practices, and allowed limited participation in land management and planning** (Tsosie 2007). Furthermore, **Native American communities may be more vulnerable to climate change impacts, as their rights and livelihoods tend to be interwoven with specific lands limiting their relocation options in the face of alterations in resource availability** (Donoghue et al. 2009). **The melting of permafrost,** which has already turned solid ground into mush in some places in Alaska, **threatens the economies and cultures of many Alaskan tribes as they may be required to relocate at large economic and cultural cost** (NTAA 2009). For example, **the way of life of the Inupiaq Tribe in Alaska is threatened owing to climate change. The traditional method of food storage of Inupiaqs is being disrupted by warming, as “permafrost” does not remain permanent, leading their belowground storages** (sigulaqs in native language) **to be thawed and sometimes flooded with meltwater**. **The resulting spoiled meat increases the risk of food-related illness**.

#### SMRs solves warming

Clean Air Task Force 3/1

(“The Nuclear Decarbonization Option:¶ Profiles of Selected Advanced ¶ Reactor Technologies” <http://bipartisanpolicy.org/sites/default/files/CATF%20Nuclear%20Decarbonization%20Option.pdf>, SEH)

WE LIVE IN A WORLD divided by many issues, but most ¶ policy-makers accept the basic premise that **increasing ¶ the availability of affordable low-carbon energy would ¶ make the world healthier, wealthier, and safer**. Conventional fuel delivery systems are strained in many regions, ¶ the global geopolitics of energy supply are fraught, and ¶ carbon dioxide emissions, despite decades of debate since ¶ Rio and Kyoto, are rising faster now than at any point in ¶ history. And still, billions remain without regular access ¶ to electricity and mobility. **¶ Nuclear energy provides more than 40 percent of all ¶ low-carbon electricity generated in the world today**. That ¶ contribution could grow, but public perceptions of safety ¶ remain a key challenge—particularly post-Fukushima—¶ and competitive costs, as always, will be paramount. In ¶ order to assess the impact that advanced technologies ¶ could play in the development and deployment of new ¶ nuclear reactor designs, the Clean Air Task Force asked ¶ several national leaders in nuclear technology to give us ¶ their perspectives on key policy-relevant issues.¶ We asked Dr. Ted Marston, former Chief Technology ¶ Officer of the Electric Power Research Institute, to write ¶ for us on small, modular light water reactors (smLWRs). ¶ Dr. Andrew Kadak, former Professor of the Practice in ¶ Nuclear Engineering at the Massachusetts Institute of ¶ Technology, examines the prospects for high-temperature ¶ gas-cooled reactors (HTGRs). And Dr. Per Peterson, Chair ¶ of the Nuclear Engineering Department at University of ¶ California, Berkeley, explores the future of some fluoride ¶ molten salt reactors (called FHRs). ¶ Their conclusions are important and offer reasons for ¶ optimism**:¶ l Small, modular** light water **reactors** (smLWRs):¶ With modest development efforts, smLWRs, using fuel ¶ and systems quite similar to modern LWRs, **could** ¶ **offer** significantly enhanced safety over the existing ¶ nuclear fleet, deployment flexibility (e.g., staged investment and repurposing of some existing infrastructure), ¶ and potential cost-reductions through efficiencies of ¶ factory manufacturing. ¶ l High-temperature gas-cooled reactors (HTGRs): HTGRs, using extremely heat-resistant, encapsulated fuel (already demonstrated in the United States¶ and elsewhere) offer the possibility of nearly meltdownproof reactors, higher thermal efficiencies, and **expanded uses for nuclear energy (e.g., manufacturing of ¶ zero-carbon liquid transportation fuels), as well as many ¶ of the potential deployment and manufacturing advantages of smLWRs.** ¶ l Fluoride salt-cooled High temperature Reactors (FHRs): And FHRs, using the same heat-resistant, encapsulated fuel as HTGRs, but with coolants of ¶ dense molten salt compounds, could retain many of ¶ the advantages of HTGRs at a greatly reduced size, ¶ offering the potential for breakthrough economics if ¶ designs prove out.¶ **For a world struggling to reduce carbon emissions while ¶ sustaining and increasing economic growth, and understandably concerned about the potential risks of nuclear ¶ energy, the advantages these advanced reactor designs ¶ offer could be profound.** But bringing these concepts to ¶ commercial reality will require sustained development, ¶ especially for the more advanced concepts. Our hope is ¶ that these papers will help to inform the debate about how ¶ governments and the private sector should support that ¶ development.

can be helped to transform ¶ into a discipline that thinks in a more holistic, global manner.

#### Framework:

#### Interpretation: The affirmative must defend the hypothetical enactment of a topical federal government action; the negative must defend the status quo or a competing option.

#### a) Best for real world education – our fw most closely resembles how policymakers decide on advocacy. Prefer our framework – Policy role-play doesn’t indoctrinate or get stale – makes best Real World education.

Joyner ‘99

(Christopher C., Professor of International Law at Georgetown, “Teaching International Law”, 5 Ilsa. J. Int’l & Comp. L. 377, Lexis)

Use of the debate can be an effective pedagogical toolfor education in the social sciences. Debates, like other role-playing simulations, help students understand different perspectives on a policy issue by adopting a perspective as their own. But**,** unlike other simulation games, debates do not require that a student participate directly in order to realize the benefit of the game. Instead of developing policy alternatives and experiencing the consequences of different choices in a traditional role-playing game, debates presentthe alternativesand consequences in aformal, rhetorical fashionbefore a judgmental audience. Having the class audience serve as jury helps each student develop a well-thought-out opinion on the issue by providing contrasting facts and views and enabling audience members to pose challenges to each debating team. These debates askundergraduate students to examinethe international legal implications of variousUnited States foreign policyactions**.** Their chief tasks are to assess the aims of the policy in question, determine their relevance to United States national interests, ascertain what legal principles are involved, and conclude how the United States policy in question squares with relevant principles of international law. Debate questions are formulated as resolutions, along the lines of: "Resolved: The United States should deny most-favored-nation status to China on human rights grounds;" or "Resolved: The United States should resort to military force to ensure inspection of Iraq's possible nuclear, chemical and biological weapons facilities;" or "Resolved: The United States' invasion of Grenada in 1983 was a lawful use of force;" or "Resolved: The United States should kill Saddam Hussein." In addressing both sidesof these legal propositions, the student debaters must consult the vast literatureof international law, especially the nearly 100 professional law-school-sponsored international law journals now being published in the United States. This literature furnishes an incredibly rich body of legal analysis that often treats topics affecting United States foreign policy, as well as other more esoteric international legal subjects. Although most of these journals are accessible in good law schools, they are largely unknown to the political science community specializing in international relations, much less to the average undergraduate. By assessingthe role of international law in United Statesforeign policy- making, students realize that United States actions do not always measure up tointernational legal expectations; that § Marked 12:08 § at times, international legal strictures get compromised for the sake of perceived national interests, and that concepts and principles of international law, like domestic law, can be interpreted and twisted in order to justify United States policy in various international circumstances. In this way, the debate format gives students the benefits ascribed to simulationsand other action learning techniques, in that it makes them become actively engaged with their subjects, and not be mere passive consumers. Rather than spectators, students becomelegal advocates, observing, reacting to, and structuring politicaland legal perceptions to fit the merits of their case**.** The debate exercises carry several specific educational objectives. First, studentson each team must work together to refine a cogent argument that compellingly asserts their legal position on a foreign policy issue confronting the United States. In this way, they gain greater insight into the real-worldlegal dilemmas faced by policy makers**.** Second, as they work with other members of their team, they realize the complexities of applying and implementing international law, and the difficulty of bridging the gaps between United States policy and international legal principles, either by reworking the former or creatively reinterpreting the latter. Finally, researchfor the debates forces students to become familiarized with contemporary issueson the United States foreign policy agenda and the role that international law plays in formulating and executing these policies. n8 Thedebate thus becomes an excellent vehicle for pushing students beyond stale argumentsover principles into the real world of policy analysis, political critique, and legal defense.

#### b) Fairness – our interp provides a clear way to compare two advocacies by weighing impacts which is essential to fairness. Their fw makes opportunity cost impossible and invites judge intervention.

#### c) Predictability – our fw ensures predictable aff ground because we predict args based upon our resolutional literature.

#### d) Infinitely regressive – there are an infinite number of philosophical perspectives from which they can argue

#### Violation: The negative says we shouldn’t get Fiat and does not endorse a competitive option nor a competitive option.

#### Give me a lot of lea weigh on this question of the violation when it comes to the 1AR and 2AR any reinterpretation or clarifcition of their advocacy allows us to make more violations and elaborate.

#### Perm: We endorse the affirmative and the 1NC this argument is justified because the positions are not mutually exclusive.

#### No link they don’t ask what the methodology of the 1AC is or confront this question in cross x we can at most it’s a link of omission which are most predictable proves the permutation is a good and valid argument because we are able to discuss.

#### Methodology can be redeployed through ENGAGEMENT means the perm solves

Lombardi ‘96

Mark Owen Lombardi, Associate Political Science Prof @ Tampa, 96, Perspectives on Third-World Sovereignty, p 161

**Sovereignty is in our collective minds.** What we look at, the way we look at it and what we expect to see must be altered. This is the call for international scholars and actors. **The assumptions of the paradigm will dictate the solution and approaches considered. Yet, a mere call to change this structure of the system does little except activate reactionary impulses and intellectual retrenchment. Questioning the very precepts of sovereignty**, as has been done in many instances, **does not in and of itself address the problems and issues so critical to transnational relations. That is why theoretical changes and paradigm shifts must be coterminous with applicative studies. One does not and should not precede the other. We cannot wait until we have a neat self-contained and accurate theory of transnational relations before we launch into studies of** Third-World issues and **problem-solving. If we wait we will never address the latter and arguably most important issue-area: the welfare and quality of life for the human race.**

#### Nuclear technocracy’s key to solve

Nordhaus ‘11

chairman – Breakthrough Instiute, and Shellenberger, president – Breakthrough Insitute, MA cultural anthropology – University of California, Santa Cruz, 2/25/‘11

(Ted and Michael, <http://thebreakthrough.org/archive/the_long_death_of_environmenta>)

Tenth, we are going to have to get over our suspicion of technology, especially nuclear power. There is no credible path to reducing global carbon emissions without an enormous expansion of nuclear power. It is the only low carbon technology we have today with the demonstrated capability to generate large quantities of centrally generated electrtic power. It is the low carbon of technology of choice for much of the rest of the world. Even uber-green nations, like Germany and Sweden, have reversed plans to phase out nuclear power as they have begun to reconcile their energy needs with their climate commitments. Eleventh, we will need to embrace again the role of the state as a direct provider of public goods. The modern environmental movement, borne of the new left rejection of social authority of all sorts, has embraced the notion of state regulation and even creation of private markets while largely rejecting the generative role of the state. In the modern environmental imagination, government promotion of technology - whether nuclear power, the green revolution, synfuels, or ethanol - almost always ends badly. Never mind that virtually the entire history of American industrialization and technological innovation is the story of government investments in the development and commercialization of new technologies. Think of a transformative technology over the last century - computers, the Internet, pharmaceutical drugs, jet turbines, cellular telephones, nuclear power - and what you will find is government investing in those technologies at a scale that private firms simply cannot replicate. Twelveth, big is beautiful. The rising economies of the developing world will continue to develop whether we want them to or not. The solution to the ecological crises wrought by modernity, technology, and progress will be more modernity, technology, and progress. The solutions to the ecological challenges faced by a planet of 6 billion going on 9 billion will not be decentralized energy technologies like solar panels, small scale organic agriculture, and a drawing of unenforceable boundaries around what remains of our ecological inheritance, be it the rainforests of the Amazon or the chemical composition of the atmosphere. Rather, these solutions will be: large central station power technologies that can meet the energy needs of billions of people increasingly living in the dense mega-cities of the global south without emitting carbon dioxide, further intensification of industrial scale agriculture to meet the nutritional needs of a population that is not only growing but eating higher up the food chain, and a whole suite of new agricultural, desalinization and other technologies for gardening planet Earth that might allow us not only to pull back from forests and other threatened ecosystems but also to create new ones. The New Ecological Politics The great ecological challenges that our generation faces demands an ecological politics that is generative, not restrictive. An ecological politics capable of addressing global warming will require us to reexamine virtually every prominent strand of post-war green ideology. From Paul Erlich's warnings of a population bomb to The Club of Rome's "Limits to Growth," contemporary ecological politics have consistently embraced green Malthusianism despite the fact that the Malthusian premise has persistently failed for the better part of three centuries. Indeed, the green revolution was exponentially increasing agricultural yields at the very moment that Erlich was predicting mass starvation and the serial predictions of peak oil and various others resource collapses that have followed have continue to fail. This does not mean that Malthusian outcomes are impossible, but neither are they inevitable. We do have a choice in the matter, but it is not the choice that greens have long imagined. The choice that humanity faces is not whether to constrain our growth, development, and aspirations or die. It is whether we will continue to innovate and accelerate technological progress in order to thrive. Human technology and ingenuity have repeatedly confounded Malthusian predictions yet green ideology continues to cast a suspect eye towards the very technologies that have allowed us to avoid resource and ecological catastrophes. But such solutions will require environmentalists to abandon the "small is beautiful" ethic that has also characterized environmental thought since the 1960's. We, the most secure, affluent, and thoroughly modern human beings to have ever lived upon the planet, must abandon both the dark, zero-sum Malthusian visions and the idealized and nostalgic fantasies for a simpler, more bucolic past in which humans lived in harmony with Nature.

#### Debate about the resolution are key to energize the debate space

Mitchell 10

(Gordon R., Associate Professor, Director of Graduate Studies, and Director of the William Pitt Debating Union at the University of Pittsburgh; Spring, “Switch-Side Debating Meets Demand-Driven Rhetoric of Science,” Rhetoric & Public Affairs, Vol. 13, No. 1 – Kurr)

The preceding analysis of U.S. intelligence community debating initiatives highlighted how analysts are challenged to navigate discursively the heteroglossia of vast amounts of different kinds of data flowing through intelligence streams. Public policy planners are tested in like manner when they attempt to stitch together institutional arguments from various and sundry inputs ranging from expert testimony, to historical precedent, to public comment. Just as intelligence managers find that algorithmic, formal methods of analysis often don't work when it comes to the task of interpreting and synthesizing copious amounts of disparate data, public-policy planners encounter similar challenges. In fact, the argumentative turn in public-policy planning elaborates an approach to public-policy analysis that foregrounds deliberative interchange and critical thinking as alternatives to "decisionism," the formulaic application of "objective" decision algorithms to the public policy process. Stating the matter plainly, Majone suggests, "whether in written or oral form, argument is central in all stages of the policy process." Accordingly, he notes, "we miss a great deal if we try to understand policy-making solely in terms of power, influence, and bargaining, to the exclusion of debate and argument."51 One can see similar rationales driving Goodwin and Davis's EPA debating project, where debaters are invited to conduct on-site public debates covering resolutions crafted to reflect key points of stasis in the EPA decision-making process. For example, in the 2008 Water Wars debates held at EPA headquarters in Washington, D.C., resolutions were crafted to focus attention on the topic of water pollution, with one resolution focusing on downstream states' authority to control upstream states' discharges and sources of pollutants, and a second resolution exploring the policy merits of bottled water and toilet paper taxes as revenue sources to fund water infrastructure projects. In the first debate on interstate river pollution, the team of Seth Gannon and Seungwon Chung from Wake Forest University argued in favor of downstream state control, with the Michigan State University team of Carly Wunderlich and Garrett Abelkop providing opposition. In the second debate on taxation policy, Kevin Kallmyer and Matthew Struth from University of Mary Washington defended taxes on bottled water and toilet paper, while their opponents from Howard University, Dominique Scott and Jarred McKee, argued against this proposal. Reflecting on the project, Goodwin noted how the intercollegiate [End Page 106] debaters' ability to act as "honest brokers" in the policy arguments contributed positively to internal EPA deliberation on both issues.52 Davis observed that since the invited debaters "didn't have a dog in the fight," they were able to give voice to previously buried arguments that some EPA subject matter experts felt reticent to elucidate because of their institutional affiliations.53 Such findings are consistent with the views of policy analysts advocating the argumentative turn in policy planning. As Majone claims, "Dialectical confrontation between generalists and experts often succeeds in bringing out unstated assumptions, conflicting § Marked 12:10 § interpretations of the facts, and the risks posed by new projects."54 Frank Fischer goes even further in this context, explicitly appropriating rhetorical scholar Charles Willard's concept of argumentative "epistemics" to flesh out his vision for policy studies: Uncovering the epistemic dynamics of public controversies would allow for a more enlightened understanding of what is at stake in a particular dispute, making possible a sophisticated evaluation of the various viewpoints and merits of different policy options. In so doing, the differing, often tacitly held contextual perspectives and values could be juxtaposed; the viewpoints and demands of experts, special interest groups, and the wider public could be directly compared; and the dynamics among the participants could be scrutizined. This would by no means sideline or even exclude scientific assessment; it would only situate it within the framework of a more comprehensive evaluation.55 As Davis notes, institutional constraints present within the EPA communicative milieu can complicate efforts to provide a full airing of all relevant arguments pertaining to a given regulatory issue. Thus, intercollegiate debaters can play key roles in retrieving and amplifying positions that might otherwise remain sedimented in the policy process. The dynamics entailed in this symbiotic relationship are underscored by deliberative planner John Forester, who observes, "If planners and public administrators are to make democratic political debate and argument possible, they will need strategically located allies to avoid being fully thwarted by the characteristic self-protecting behaviors of the planning organizations and bureaucracies within which they work."56 Here, an institution's need for "strategically located allies" to support deliberative practice constitutes the demand for rhetorically informed expertise, setting up what can be considered a demand-driven rhetoric of science. As an instance of rhetoric of science scholarship, this type of "switch-side public [End Page 107] debate"57 differs both from insular contest tournament debating, where the main focus is on the pedagogical benefit for student participants, and first-generation rhetoric of science scholarship, where critics concentrated on unmasking the rhetoricity of scientific artifacts circulating in what many perceived to be purely technical spheres of knowledge production.58 As a form of demand-driven rhetoric of science, switch-side debating connects directly with the communication field's performative tradition of argumentative engagement in public controversy—a different route of theoretical grounding than rhetorical criticism's tendency to locate its foundations in the English field's tradition of literary criticism and textual analysis.59 Given this genealogy, it is not surprising to learn how Davis's response to the EPA's institutional need for rhetorical expertise took the form of a public debate proposal, shaped by Davis's dual background as a practitioner and historian of intercollegiate debate. Davis competed as an undergraduate policy debater for Howard University in the 1970s, and then went on to enjoy substantial success as coach of the Howard team in the new millennium. In an essay reviewing the broad sweep of debating history, Davis notes, "Academic debate began at least 2,400 years ago when the scholar Protagoras of Abdera (481–411 BC), known as the father of debate, conducted debates among his students in Athens."60 As John Poulakos points out, "older" Sophists such as Protagoras taught Greek students the value of dissoi logoi, or pulling apart complex questions by debating two sides of an issue.61 The few surviving fragments of Protagoras's work suggest that his notion of dissoi logoi stood for the principle that "two accounts [logoi] are present about every 'thing,' opposed to each other," and further, that humans could "measure" the relative soundness of knowledge claims by engaging in give-and-take where parties would make the "weaker argument stronger" to activate the generative aspect of rhetorical practice, a key element of the Sophistical tradition.62 Following in Protagoras's wake, Isocrates would complement this centrifugal push with the pull of synerchésthé, a centripetal exercise of "coming together" deliberatively to listen, respond, and form common social bonds.63 Isocrates incorporated Protagorean dissoi logoi into synerchésthé, a broader concept that he used flexibly to express interlocking senses of (1) inquiry, as in groups convening to search for answers to common questions through discussion;64 (2) deliberation, with interlocutors gathering in a political setting to deliberate about proposed courses of action;65 and (3) alliance formation, a form of collective action typical at festivals,66 or in the exchange of pledges that deepen social ties.67 [End Page 108] Returning once again to the Kettering-informed sharp distinction between debate and deliberation, one sees in Isocratic synerchésthé, as well as in the EPA debating initiative, a fusion of debate with deliberative functions. Echoing a theme raised in this essay's earlier discussion of intelligence tradecraft, such a fusion troubles categorical attempts to classify debate and deliberation as fundamentally opposed activities. The significance of such a finding is amplified by the frequency of attempts in the deliberative democracy literature to insist on the theoretical bifurcation of debate and deliberation as an article of theoretical faith. Tandem analysis of the EPA and intelligence community debating initiatives also brings to light dimensions of contrast at the third level of Isocratic synerchésthé, alliance formation. The intelligence community's Analytic Outreach initiative invites largely one-way communication flowing from outside experts into the black box of classified intelligence analysis. On the contrary, the EPA debating program gestures toward a more expansive project of deliberative alliance building. In this vein, Howard University's participation in the 2008 EPA Water Wars debates can be seen as the harbinger of a trend by historically black colleges and universities (HBCUS) to catalyze their debate programs in a strategy that evinces Davis's dual-focus vision. On the one hand, Davis aims to recuperate Wiley College's tradition of competitive excellence in intercollegiate debate, depicted so powerfully in the feature film The Great Debaters, by starting a wave of new debate programs housed in HBCUS across the nation.68 On the other hand, Davis sees potential for these new programs to complement their competitive debate programming with participation in the EPA's public debating initiative. This dual-focus vision recalls Douglas Ehninger's and Wayne Brockriede's vision of "total" debate programs that blend switch-side intercollegiate tournament debating with forms of public debate designed to contribute to wider communities beyond the tournament setting.69 Whereas the political telos animating Davis's dual-focus vision certainly embraces background assumptions that Greene and Hicks would find disconcerting—notions of liberal political agency, the idea of debate using "words as weapons"70—there is little doubt that the project of pursuing environmental protection by tapping the creative energy of HBCU-leveraged dissoi logoi differs significantly from the intelligence community's effort to improve its tradecraft through online digital debate programming. Such difference is especially evident in light of the EPA's commitment to extend debates to public realms, with the attendant possible benefits unpacked by Jane Munksgaard and Damien Pfister: [End Page 109] Having a public debater argue against their convictions, or confess their indecision on a subject and subsequent embrace of argument as a way to seek clarity, could shake up the prevailing view of debate as a war of words. Public uptake of the possibility of switch-sides debate may help lessen the polarization of issues inherent in prevailing debate formats because students are no longer seen as wedded to their arguments. This could transform public debate from a tussle between advocates, with each public debater trying to convince the audience in a Manichean struggle about the truth of their side, to a more inviting exchange focused on the content of the other's argumentation and the process of deliberative exchange.71 Reflection on the EPA debating initiative reveals a striking convergence among (1) the expressed need for dissoi logoi by government agency officials wrestling with the challenges of inverted rhetorical situations, (2) theoretical claims by scholars regarding the centrality of argumentation in the public policy process, and (3) the practical wherewithal of intercollegiate debaters to tailor public switch-side debating performances in specific ways requested by agency collaborators. These points of convergence both underscore previously articulated theoretical assertions regarding the relationship of debate to deliberation, as well as deepen understanding of the political role of deliberation in institutional decision making. But they also suggest how decisions by rhetorical scholars about whether to contribute switch-side debating acumen to meet demand-driven rhetoric of science initiatives ought to involve careful reflection. Such an approach mirrors the way policy planning in the "argumentative turn" is designed to respond to the weaknesses of formal, decisionistic paradigms of policy planning with situated, contingent judgments informed by reflective deliberation.

#### Academic energy research and debates are key to change

Davenport ’12

Julie is with the London School of Economics, “It’s time for government to use relevant research to dictate the policies of the future,” <http://blogs.lse.ac.uk/impactofsocialsciences/2012/07/20/research-government-dictate-policies/>

The lack of research that informs major policy decisions can be astounding, writes Juliet Davenport. Academia has been criticised for not generating research that is relevant to the public but the issue of climate change is the perfect chance for this to change.¶ My experience, working with a small electricity supplier in the UK energy market, is that it is very important for companies to communicate effectively with academic research. There are three key areas where academic research is important to our business.¶ Policy and regulatory change¶ Commercial strategy¶ Consumer strategy¶ Policy and regulation¶ Government policy initiatives regarding renewable energy are often in danger of being skewed towards the ‘Big 6’ energy companies – the behemoths like British Gas and EDF who dominate 99% of energy supply in the UK. But we believe that policy needs to take account of all stakeholders, regardless of size, and use the impact of research to raise awareness of the need to influence government regulation. For example, Good Energy’s research into the potential for the UK to become 100 per cent renewable. ¶ The lack of research that informs major policy decisions can be astounding. For example the draft Energy Bill currently going through parliament includes a complex proposal for guaranteeing energy prices for renewable generators called a Contract for Difference (CFD). But this appears to have been put forward with very little significant research into the commercial reality of how the market operates. It doesn’t consider other, smaller players in the market, and other factors such as liquidity and credit. Looking only at its economic basis is much too simplistic and demonstrates the lack of research in the area.¶ Commercial strategy¶ The commercial potential for the UK energy market is enormous. At present, the UK imports 57% of the fuel used for generating electricity from abroad, resulting in an opportunity cost in terms of revenue and UK jobs. But research shows that the UK can be more self-sufficient in its renewable energy generation, leading to better energy security and more stable energy bills for consumers. Whilst there may be a need to refine and develop this research further, the government’s outright refusal to take it seriously highlights the lack of commitment to renewable energy generation as a whole. ¶ Despite our small size, Good Energy has a strong record of innovation in the energy industry. We’re currently looking at how to maximise the value of wind power by managing of domestic demands. “Demand for Wind” is a joint project with Durham University and Senergy Econnect, a specialist in grid connection for renewable energy. It shows how the timing of domestic electricity demand can be influenced by switching equipment on when wind energy is available, and off when it isn’t for example powering down the freezer for short periods when the wind drops. Research and trials show that this is feasible using existing technology. It now needs the government, both local and national, to take the theoretical research into practice.¶ Consumer strategy¶ Scientific research into climate change is still incredibly important, but scientists can sometimes be poor at communicating their findings! Up to date research for climate change needs to be continually released, because if people stop hearing about climate change, it will drift out of their consciousness and they will stop doing anything about it.¶ This research needs to be related to specific consumer needs. Good Energy surveyed a sample of our 35,000 home generators to find out how microgeneration influenced their behaviour. Among the findings, we discovered that over half of people claim to have reduced their energy consumption since installing their generator. Research like this is valuable evidence which should influence practical methods of development in the future.¶ Local governments also need to become more involved with the results of academic research. Energy policy needs to be fit for local government, so that the stigma surrounding raising taxes – which could be used to support renewable energy generation — is removed. Two examples where this has worked well are local governments being able to sell energy, and the Feed-in tariff which has allowed social housing providers to become involved in generation. However, these are just the start of a long process. ¶ There are two huge opportunities coming up for local government to implement more active energy policies based on sound research: the Green Deal and Renewable Heat Incentive. Researchers and policymakers need to broaden their focus so that energy is not just about the Big Six, but about innovation, forward thinking and new ways of meeting the challenges we face.¶

#### Only aff produces an energy dialogue that activates critique

Stevenson 9

Stevenson, PhD, senior lecturer and independent consultant – Graduate School of the Environment @ Centre for Alternative Technology, ‘9

(Ruth, “Discourse, power, and energy conflicts: understanding Welsh renewable energy planning policy,” Environment and Planning C: Government and Policy, Volume 27, p. 512-526)

It could be argued that this result arose from the lack of expertise of the convenors of the TAN 8 in consensual decision making. Indeed, there is now more research and advice on popular participation in policy issues at a community level (eg Kaner et al, 1996; Ostrom, 1995; Paddison, 1999). However, for policy making the state remains the vehicle through which policy goals must be achieved (Rydin, 2003) and it is through the state that global issues such as climate change and sustainable development must be legislated for, and to some extent enacted. It is therefore through this structure that any consensual decision making must be tested. This research indicates that the policy process cannot actually overcome contradictions and conflict. Instead, encompassing them may well be a more fruitful way forward than attempts at consensus. Foucault reinforces the notion that the `field of power' can prove to be positive both for individuals and for the state by allowing both to act (Darier, 1996; Foucault, 1979). Rydin (2003) suggests that actors can be involved in policy making but through `deliberative' policy making rather than aiming for consensus: ``the key to success here is not consensus but building a position based on divergent positions'' (page 69).¶ Deliberative policy making for Rydin involves: particular dialogic mechanisms such as speakers being explicit about their values, understandings, and activities: the need to move back and forth between memories (historical) and aspirations (future); moving between general and the particular; and the adoption of role taking (sometimes someone else's role). There is much to be trialed and tested in these deliberative models, however, a strong state is still required as part of the equation if we are to work in the interests of global equity, at least until the messages about climate change and sustainable development are strong enough to filter through to the local level. It is at the policy level that the usefulness of these various new techniques of deliberative policy making must be tested, and at the heart of this must be an understanding of the power rationalities at work in the process.

#### And, scientific and instrumental argumentation and research is key to motivate legislative fence-sitters. Their critical approach is just preaching to the choir which endangers public and decision-making backlashes which turn their advocacy. Only our interp can generate the public debates necessary to ensure survival. This immediately answers their allies argument.

Brown 2k11

[heath, PhD Political Science, Roanoke, Salem, VA, “narrative strategies used by interest groups during the 2008 presidental transition”, 2011 Pat-Net Conference]

Milbrath argues that interest groups must strategically present information so as to ¶ overcome the “perceptual screen” that shields policy makers from absorbing endless amounts ¶ of information. He suggests that groups use facts (scientific information about policy ¶ outcomes), arguments (normative explanations of justness or rightness of action), and power¶ (typically subtle offers of political support or threats of political retribution) to communicate ¶ their interests and make their case for policy action (or inaction). In a more recent approach, ¶ Esterling (2007, p. 79) makes the case that groups can use [using] “instrumental” – “research or ¶ evidence-based causal” arguments -- or “normative” – “intrinsic desirability” arguments. By ¶ emphasizing one of these approaches, a group is tacitly communicating the way it wants to ¶ persuade the target of the information. By emphasizing power or normative arguments, the ¶ group implies that the policy maker should make decisions based primarily on their political ¶ judgment and political future. Conversely, by emphasizing facts-based or instrumental ¶ arguments, the group implies that the policy maker should base decisions primarily on rational ¶ or scientific considerations. In practice, it is difficult to disentangle these two types of ¶ arguments and many groups will likely combine various ways to present information (Wright ¶ 1996; Rochefort and Cobb 1994). The dichotomy though does help clarify the persuasive or ¶ argumentative tone of the information and advice given by groups to policy makers. 6 ¶ While public perceptions of interest groups might suggest crass self-interest, ¶ manipulation, and deception, groups have an incentive to be forthright in the information they ¶ provide and arguments they make. A group that provides shoddy statistics or misleading ¶ arguments will be discounted in future interactions with the policy maker (Kersh 2009; ¶ Easterling 2007). John E. Chubb (1983, p. 145) writes in regard to energy interest groups: ¶ “information and advice that are solely self-serving threaten the bond of trust that facilitates ¶ the informal play of influence.” In fact, rather than targeting political opponents or fence ¶ sitters, much research suggests that groups prefer or are invited to lobby friends and allies over ¶ adversaries (Baumgartner et al. 2009; Hojnacki and Kimball 1998, 1999; Hall and Deardorff ¶ 2006; Bauer et al. 1963; Holyoke 2004; McCool 1990). If this is the case, the cost of ¶ misrepresenting or overstating information may be particularly high for those engaged in what ¶ Hall and Deardorff (2006) and others have called “legislative subsidy” (Hall and Deardorff 2006; ¶ Esterling 2007a). From this subsidy perspective, if a policy maker is sub-contracting information ¶ collection and analysis to an allied interest group, it behooves that group to be conscientious, ¶ thorough, and consistent in the information and advice it gives. And in many cases, as Wright ¶ (1996) contends, it is relatively easy for policy makers to check the authenticity of the ¶ information provided to them, sometimes simply through the contradictory information ¶ provided by other groups, thereby curtailing the inclination to blatantly misrepresent the truth. ¶ Furthermore, experimental research shows that factual or instrumental information is ¶ preferred by legislative staff (LaPira 2008) and neutral expert lobbyists have more legislative ¶ access than non-experts (Esterling 2007b). Facts may be useful on their own terms in ¶ formulating legislative decisions but scientific or statistically based arguments also serve as a 7 ¶ cue for policy makers to determine the credibility or reliability of the advice they are given ¶ (Sabatier 1978). ¶ Rather than convince those already in agreement, the approach taken by proactive ¶ theorists suggests that groups seek to convince legislative fence sitters or opponents to adopt ¶ the group’s position, advocate the group’s interests, or simply vote in the group’s way through ¶ the offer of, or refusal to give, political support (Smith 1984; Austen-Smith and Wright 1994; ¶ Wright 1996). Wright (1990) for one finds that groups which distribute campaign contributions ¶ to a wide group of legislators are then able to access a wider group, rather than just political ¶ allies (Wright 1990). Similarly, Heberling (2005) shows that one group, the AFL-CIO, seeks out ¶ legislators with unknown political preferences rather than targeting political allies (Heberling ¶ 2005). The field of interest group research has not yet resolved whether groups typically lobby ¶ friends, adversaries, or some combination of the two (Leech and Baumgartner 1998). This is ¶ likely due to the wide variation of group types and also policy domains in which groups operate. ¶ These inter-organizational and inter-policy differences affect the strategies employed and ¶ therefore the content of information presented during lobbying.

#### Debating about specific policies is essential to promote more ethical and accountable policymaking – their abstract politics promotes disengagement and poor argumentation skills

 David Chandler. 2007. Centre for the Study of Democracy, Westminster, Area, Vol. 39, No. 1, p. 118-119

**This disjunction between the human/ethical/global causes of post-territorial political activism and the capacity to 'make a difference' is what makes these individuated claims immediately abstract and metaphysical – there is no specific demand or programme or attempt to build a collective project**. This is the politics of symbolism. The rise of symbolic activism is highlighted in the increasingly popular framework of 'raising awareness'– here there is no longer even a formal connection between ethical activity and intended outcomes (Pupavac 2 006). Raising awareness about issues has replaced even the pretense of taking responsibility for engaging with the world – the act is ethical in-itself. Probably the most high profile example of awareness raising is the shift from Live Aid, which at least attempted to measure its consequences in fund-raising terms, to Live 8 whose goal was solely that of raising an 'awareness of poverty'. **The struggle for 'awareness' makes it clear that the focus of symbolic politics is the individual and their desire to elaborate upon their identity** – to make us aware of their 'awareness', **rather than to engage us in an instrumental project of changing or engaging with the outside world**. It would appear that **in freeing politics from the constraints of territorial political community there is a danger that political activity is freed from any constraints of social mediation** (see further, Chandler 2004a**). Without being forced to test and hone our arguments, or even to clearly articulate them, we can rest on the radical 'incommunicability' of our personal identities and claims – you are 'either with us or against us'; engaging § Marked 12:13 § with those who disagree is no longer possible or even desirable**. **It is this lack of desire to engage which most distinguishes the unmediated activism of post-territorial political actors from the old politics of territorial communities, founded on struggles of collective interests** (Chandler 2004b). The clearest example is old representational politics – this forced engagement in order to win the votes of people necessary for political parties to assume political power. Individuals with a belief in a collective programme knocked on strangers' doors and were willing to engage with them, not on the basis of personal feelings but on what they understood were their potential shared interests. Few people would engage in this type of campaigning today; engaging with people who do not share our views, in an attempt to change their minds, is increasingly anathema and most people would rather share their individual vulnerabilities or express their identities in protest than attempt to argue with a peer.This paper is not intended to be a nostalgic paean to the old world of collective subjects and national interests or a call for a revival of territorial state-based politics or even to reject global aspirations: quite the reverse. Today, **politics has been 'freed' from the constraints of territorial political community – governments without coherent policy programmes do not face the constraints of failure or the constraints of the electorate in any meaningful way; activists, without any collective opposition to relate to, are free to choose their causes and ethical identities; protest, from Al Qaeda, to anti-war demonstrations, to the riots in France, is inchoate and atomized. When attempts are made to formally organize opposition, the ephemeral and incoherent character of protest is immediately apparent.**

#### Alternative gets commodified by the discursive economy of the debate space – takes out solvency

Mann 99

Paul. Professor of Literature @ Pomona. Masocriticism. Pp 3-4.

Now autopsies of the putative corpse of the avant-garde usually reveal a predictable etiology. In general, it seems the avant-garde died because it was unable to sustain its alterity, its difference, its otherness. It produced too many signs of the same and hence exhausted its credibility. The avant-grade died because all major forms of anti-art or aesthetic resistance end up in the very museums and cultural institutions that they began by calling into question; because the avant-garde insistence on innovation reduced itself to the most trivial market for novelties; because its attacks on tradition became tradition; because its attacks on the culture of the commodity only produced more cultural commodities; because it could not at one and the same time oppose mainstream culture and serve as its research and development agency; because anti-art succeeded despite itself in becoming Art; because, in short, the avant-garde continually turned itself into everything it denounced: fashion, commodities, high art, museum culture, Western civilization, bourgeois self-indulgence, and academic commentary. These are the causes or symptoms of the avant-garde’s fatality in the standard accounts. For the most part, I was more interested in what those accounts suggested about the perceived order of contemporary culture than in whether or not any one of them was, strictly speaking, true; but in any case let us accent them for the moment as a set of facts and garther them into another diagnosis: The avant-garde died of exposure. It died by revealing itself to its enemies. It put itself to death by continually articulating itself within the discursive economy of the cultures it claimed to subvert. It buried itself alive in the very manifestoes, events, collages, poems, and assemblages in which it proposed to live a disruptive and utopian existence. It died by putting itself in a position where people like me can appropriate it. it died of discourse. It talked, wrote, and painted itself to death.

#### Visual metaphors are rooted in a cultural bias toward visuality – the notion that a thing must be visible to be real. This visuality shapes our notions of identity and difference forming that basis for racism—turns their arg

Hibbits 94 (Bernard J., Assoc. Prof of Law @ Pitt, “Making Sense of Metaphors: Visuality, Aurality, and the Reconfiguration of American Legal Discourse” Cardozo Law Review, 229, <http://faculty.law.pitt.edu/hibbitts/meta_int.htm> )

A. Seeing Culture¶ [2.2] In [Part I](http://faculty.law.pitt.edu/hibbitts/meta_p1.htm#part1) of this Article I argued that metaphors can reflect the circumstances and attitudes of the society that generates them. In light of this point, it seems reasonable to suggest that the traditional popularity of visual metaphors in American legal language has much to do with the bias towards visual expression and experience that has traditionally characterized American culture and, inevitably, American law. ¶ [2.3] The traditional American bias towards the visual is aptly captured by the observation that "[i]n our society, . . . to be real, a thing must be visible."[45](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d45) We[46](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d46) demonstrate our visual bias in numerous ways and in numerous contexts, usually without recognizing that such a bias even exists. Every time we sing the first line of the national anthem, we ask a question about looking: "Oh say can you see . . .?" We pay for goods and services with dollar bills that bear a staring eye on their backs.[47](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d47) We go on vacation not to hear the sounds, but to "see the sights"; we take along cameras, not tape recorders.[48](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d48) ¶ [2.4] We give aesthetic priority to visual effect. Our glass and steel buildings are monuments to the power of sight, rather than sound or touch.[49](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d49) Our idea of personal beauty is primarily visual.[50](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d50) So is our idea of art, to the point where, in ordinary discourse, that term denotes purely visual painting, not music or dance.[51](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d51) Our visual orientation even colors our approach to art forms which, at least in theory, are not altogether dependent on visual appreciation: we regularly highlight the visuality of sculpture-and, at the same time, neutralize its tactility-by posting signs in our museums and art galleries that read "Do Not Touch." Is it any wonder that in such a context, our sculpture should have become "painterly,"[52](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d52) i.e., designed much more for seeing than feeling? ¶ [2.5] Less obviously, but more fundamentally, our visuality shapes our sense of social identity and difference. We tend to group one another more on the basis of similar visual appearance than on, say, similar accent.[53](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d53) This is most obvious when we categorize individuals according to the color of their skin: in our visualist culture, most Americans are "white" or "black." Visual identity has indeed become so important to us that we not only differentiate, but actually discriminate against one another on a visual basis. Having skin of a certain color may in practice entitle us to, or alternatively, it may disqualify us from educational opportunity, economic wealth, and political power.

#### Based in the cartesian notion of the SUBJECT, VISUAL metaphor’s and the primacy on the visual that spawns them are an expression the worst kinds of power relations ranging from domination of nature and biopolitical control of populations to imperialism.

Hibbits 94 (Bernard J., Assoc. Prof of Law @ Pitt, “Making Sense of Metaphors: Visuality, Aurality, and the Reconfiguration of American Legal Discourse” Cardozo Law Review, 229, <http://faculty.law.pitt.edu/hibbitts/meta_int.htm> )

 [2.21] The invention of the printing press in the mid-fifteenth century and its spread throughout Europe in the sixteenth and seventeenth centuries encouraged a further increase in personal and social literacy levels and, with that, a further increase in cultural respect for, and interest in, vision.[146](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d146) In the changing spirit of the time, the English poet Robert Herrick wrote "[w]e credit most our sight; one eye doth please/Our trust . . . more than ten eare-witnesses [sic]."[147](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d147) The French philosopher René Descartes pointedly analogized vision and thought: "We shall learn how to employ our mental intuition by comparing it with the way that we employ our eyes."[148](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d148) A child of the black and white printed text rather than of the colorful iconographic manuscript, Descartes was more interested in the disembodied "mind's eye" of the imagination[149](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d149) than in the physical perception of images,[150](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d150) but he regarded cogitation as a "seeing" notwithstanding.[151](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d151) ¶ [2.22] Consistent with the textualized immateriality of Cartesian vision, seals gave way to signatures on ordinary legal documents.[152](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d152) Law books gradually lost most of their illustrations and allegorical settings,[153](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm%22%20%5Cl%20%22d153) while courtrooms across Europe (like many churches) were stripped of much of their artwork.[154](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d154) The working robes of many lawyers and judges faded to a combination of black and white that incidentally evoked the colors (and in doing so, perhaps also the authority) of the printed page.[155](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d155) The ancient figure of Justice was blindfolded to save her from distracting images.[156](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d156) Under the impetus of line and letters, the general visuality of law was nonetheless preserved and even magnified. Following in the footsteps of Continental rhetorician Peter Ramus, leading English legal scholars such as Sir Edward Coke and Henry Finch promoted the usage of schematic, dichotomizing diagrams to clarify legal concepts and arguments.[157](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d157) Jurists became more willing to deal with legal treatises as visual and not figuratively aural works.[158](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d158) They frequently, if not yet consistently, regarded themselves and their readers as "observers."[159](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d159) Some expressly offered the public a "view" or "image" of the law;[160](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm%22%20%5Cl%20%22d160) a few conceived of legal wisdom as a metaphorical matter of light.[161](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d161) Referring to a surveyor's measuring instrument, Coke at one point called law a "golden metewand."[162](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d162) Late in the seventeenth century, the German legal philosopher and mathematician Gottfried Leibniz elaborated the ancient Aristotelian notion of law as geometry.[163](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d163) ¶ [2.23] In the eighteenth and nineteenth centuries, writing and visuality matured together. European and American literacy rates reached unprecedented levels.[164](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d164) Philosophers actually proclaimed the 1700s the "Age of Enlightenment." In the 1800s, paeans to sight became commonplace.[165](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d165) John Ruskin wrote that "[t]he greatest thing a human soul ever does in this world is to see something. . . . To see clearly is poetry, prophecy, and religion, all in one."[166](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d166) Ralph Waldo Emerson declared that at the moment of epiphany, "I become a transparent eyeball; I am nothing; I see all."[167](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d167) In a variety of contexts, vision became a sensory cipher for the exercise of power. Styles of landscape gardening that provided the upper-class householder with a pleasing view of his estate gave him power over nature.[168](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d168) Designs for asylums and prisons (such as Jeremy Bentham's "Panopticon") that enabled authorities to continually survey their inmates gave the sane power over the insane, and the law-abiding power over the criminal.[169](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d169) Vision even became an instrument of imperialism, as didactic and theatric exhibitions at home of exotic colonial lifestyles abroad gave Europeans psychological power over their overseas possessions.[170](http://faculty.law.pitt.edu/hibbitts/meta_f2.htm#d170)

#### the metaphors we use have deep seated implications on our thoughts and actions. visual metaphors have the potential to alter our epistemology in ways that are violent and exculsionary

Hibbits 94 (Bernard J., Assoc. Prof of Law @ Pitt, “Making Sense of Metaphors: Visuality, Aurality, and the Reconfiguration of American Legal Discourse” Cardozo Law Review, 229, <http://faculty.law.pitt.edu/hibbitts/meta_int.htm> )

A string of recent articles and books has stressed that metaphors are commonplace in law.[33](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d33) The multiple visual and aural metaphors with which I began this Article help to create and sustain what has imaginatively been described as "a magical world . . . where liens float, corporations reside, minds hold meetings, and promises run with the land."[34](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d34) To say that jurisprudential metaphors exist and even flourish is not, however, to say that they have been uniformly welcomed, even by the most creative lawyers and jurists. In the eighteenth century, England's Lord Mansfield commented that "nothing in law is so apt to mislead than a metaphor."[35](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d35) In the early years of this century, Yale legal theorist Wesley Hohfeld agreed.[36](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d36) In 1926, Benjamin Cardozo was willing to tolerate metaphors in law, but held that they had "to be narrowly watched, for starting out as devices to liberate thought, they end often by enslaving it."[37](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d37) ¶ [1.4] As we have come to appreciate that metaphor is omnipresent, we have come to take it very seriously.[38](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d38) Today, few would dismiss it as mere semantic decoration, ornament, or rhetorical device. Some scholars have indeed gone so far in the other direction as to suggest that **metaphors** **are fundamental tools of thought and reasoning**-so much a part of the deep structure of our mentality that "our ordinary conceptual system . . . is . . . metaphorical in nature."[39](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d39) ¶ [1.5] As an aspect of our mentality's deep structure, our metaphors can reveal a great deal about us, both as individuals and as members of a broader culture. I may use a certain metaphor because I am, or at least my culture is, familiar with the metaphor's subject matter. Coming readily to my mind as a pole of comparison, the metaphor will be meaningful to others sharing similar life experiences or backgrounds. For example, using the metaphoric expression "I struck out" to communicate failure suggests a personal and/ or cultural familiarity with baseball. Alternatively, I may use a particular metaphor because I and/or my society value or devalue its subject; using the metaphor can therefore accentuate positive or negative reaction to the metaphor's referent. For instance, were I a libertarian, or were I living in a libertarian culture, I might label government a "parasite." My choice of metaphor would not only communicate my dislike of government, but, by association, my dislike of parasites as well. ¶ [1.6] "Modal" metaphors of the sort examined in this Article can be particularly revealing of our circumstances and values. Modal metaphors directly or indirectly evoke specific modes or forms of human sensory experience: sight, sound, touch, smell, or taste. For example, if I call an attitude an "outlook," I am using a modal metaphor evoking visual experience. Alternatively, if I speak of the "texture" of an argument, I am using a modal metaphor evoking tactile experience. Over time, individuals may develop or demonstrate a penchant for modal metaphors favoring a particular sense. Far from being arbitrary, such a penchant may (as we shall see) reflect a broad cultural bias for that sense, an association with a group which in a specific historical or social context has indulged or has been forced to privilege that sense, and/or an inclination towards values which that sense has been deemed to phenomenologically support or promote. ¶ [1.7] **Ironically, we may reveal more of ourselves by our general and our modal metaphors than by statements and sayings that are the products of more calculated deliberation**. Insofar as metaphors are privy to our most profound thoughts and experiences, they may tap into cultural or personal truths of which we are not at first aware, and into notions of which we may not even approve. Calling a mental crisis a nervous "breakdown" may unwittingly manifest a modern tendency to regard the mind as a machine;[40](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d40) calling an African American football player "a little monkey" may unwittingly manifest racism.[41](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d41) In this context, metaphors operate as the "sonar" of our minds, revealing deeply submerged-but nonetheless fundamental-realities that we cannot or will not consciously acknowledge. ¶ [1.8] As an integral part of our mentality, **metaphors can also shape our thoughts and even our actions.**[42](http://faculty.law.pitt.edu/hibbitts/meta_f1.htm%22%20%5Cl%20%22d42) Calling chess a battle (or hearing someone else call it a battle) certainly encourages me to conceive of it, however inaccurately, as a harsh, even potentially violent confrontation between grim-faced opponents. The psychological impact of the metaphor may be all the more powerful if I have had little or no previous experience with the game. The way I think about chess may in turn affect my behavior. In light of the metaphor, maybe I will decide to play, or maybe I will choose to do something less aggressive. If I do choose to play, the metaphor I used or heard might well influence how I play. For instance, if chess is a battle, an intimidating, combative strategy may seem appropriate. If the "battle" metaphor becomes popular, an entire culture may be led to the same conclusion, and play chess accordingly. ¶ [1.9] Modal metaphors can have an especially strong impact on how we think and what we do. If, for example, I call "thought" itself "reflection," I am figuratively characterizing thought as a visual enterprise. Insofar as reflection literally presumes a visual subject, **the metaphor may subtly encourage thinkers to believe that they should look for intellectual stimulation, rather than listen for it; in other words, the metaphor may affect their epistemological orientation**. **The same visual metaphor may alternatively imply that only individuals from visually biased backgrounds can properly engage in thought, prompting individuals from other traditions that prize other senses to be dismissed (or not to regard themselves) as legitimate or competent participants in intellectual inquiry. In this context, the "casual" choice of a "simple" metaphor may have profoundly divisive social implications**. Describing thought as "reflection" may even induce thinkers to behave in a manner considered appropriate to a visual process: for example, the metaphor may suggest that thinkers should passively watch the world, rather than become actively engaged with it.

# 1AR 2NR- Same

#### Native Americans should and can be given a voice in climate change through participation in scientific study our framework provides a way in which to allow their voices to be heard a reason why incorporating the methodology into state action is good

Nievita Bueno Watts. 2011. PhD from ASU; Postdoctoral Research Associate. Department of Earth and Atmospheric Sciences Purdue University. “Broadening the Participation of Native Americans in Earth Science” <http://web.ics.purdue.edu/~nbuenowa/publications/Broadening_Participation_of_Native_Americans_in_Earth_Science.pdf>

One way for Native voices to be heard by the world community is for ¶ Native people to seek advanced degrees in science and become recognized as ¶ scientists within the Western system of education. I do not mean this in a way that ¶ Native students need be assimilated into the culture of Western science, but rather ¶ that Native students study Western science in such a manner that they are able to ¶ serve as an involved translator between the needs of their community and their ¶ chosen field of study. In this way the Earth Sciences can be helped to transform ¶ into a discipline that thinks in a more holistic, global manner.

#### Alternative can never solve – the debate community will always reentrench itself this argument is probably proved by letting the power point go to sleep

Mann 95

Paul. Professor @ Pomona. “Stupid Undergrounds.” Postmodern Culture. May 1995

We cannot leave this icon without noting another of its elements: the serial character of the stupid guru, the rock star, the "role model": never an absolute master, because he can be exchanged at any moment for another figure, another other; he is a place holder for a rapidly shifting field of empty, ephemeral, and tenuous attachments.No viable cult will ever grow around him, only an ever-shattering hall of mirrors, a high-velocity phase-space of weak and yet perpetual narcissistic identifications. One surfs through stupid gurus, as one surfs through cable channels or the channels in the video-porno booth, in a process that is the very model of the entropy of such attachments, always in search for the next one, the true and proper identification, which never arrives, which the process itself realizes as unrealizable, until desire is distributed and dissipated across the entire field. I have on my desk a volume entitled Threat By Example, a series of brief interviews with "inspiring" figures from the "punk underground."21 The format of the book--pictures and interviews lasting no more than a page or two, followed immediately by another, and another, and another--formalizes the linear movement of this narcissistic guru-surfing: continuous deferral to the promise of a greater imminent satisfaction that never occurs, until the velocity of selection itself becomes the empty signifier of the Other. The accelerated substitution of figures of power, authority, and identification reveals, by a kind of cinematic effect, the hollow at their center, but without thereby releasing us from their hold.The fabled abyss is flattened out, but it is no less fantastic or fatal.

#### Policy simulation key to creativity and decisionmaking—the detachment that they criticize is key to its revolutionary benefits

Eijkman 12

The role of simulations in the authentic learning for national security policy development: Implications for Practice / Dr. Henk Simon Eijkman. [electronic resource] <http://nsc.anu.edu.au/test/documents/Sims_in_authentic_learning_report.pdf>. Dr Henk Eijkman is currently an independent consultant as well as visiting fellow at the University of New South Wales at the Australian Defence Force Academy and is Visiting Professor of Academic Development, Annasaheb Dange College of Engineering and Technology in India. As a sociologist he developed an active interest in tertiary learning and teaching with a focus on socially inclusive innovation and culture change. He has taught at various institutions in the social sciences and his work as an adult learning specialist has taken him to South Africa, Malaysia, Palestine, and India. He publishes widely in international journals, serves on Conference Committees and editorial boards of edited books and international journal

Policy simulations stimulate Creativity Participation in policy games has proved to be a highly effective way of developing new combinations of experience and creativity, which is precisely what innovation requires (Geurts et al. 2007: 548). Gaming, whether in analog or digital mode, has the power to stimulate creativity, and is one of the most engaging and liberating ways for making group work productive, challenging and enjoyable. Geurts et al. (2007) cite one instance where, in a National Health Care policy change environment, ‘the many parties involved accepted the invitation to participate in what was a revolutionary and politically very sensitive experiment precisely because it was a game’ (Geurts et al. 2007: 547). Data from other policy simulations also indicate the uncovering of issues of which participants were not aware, the emergence of new ideas not anticipated, and a perception that policy simulations are also an enjoyable way to formulate strategy (Geurts et al. 2007). Gaming puts the players in an ‘experiential learning’ situation, where they discover a concrete, realistic and complex initial situation, and the gaming process of going through multiple learning cycles helps them work through the situation as it unfolds. Policy gaming stimulates ‘learning how to learn’, as in a game, and learning by doing alternates with reflection and discussion. The progression through learning cycles can also be much faster than in real-life (Geurts et al. 2007: 548). The bottom line is that problem solving in policy development processes requires creative experimentation. This cannot be primarily taught via ‘camp-fire’ story telling learning mode but demands hands-on ‘veld learning’ that allow for safe creative and productive experimentation. This is exactly what good policy simulations provide (De Geus, 1997; Ringland, 2006). In simulations participants cannot view issues solely from either their own perspective or that of one dominant stakeholder (Geurts et al. 2007). Policy simulations enable the seeking of Consensus Games are popular because historically people seek and enjoy the tension of competition, positive rivalry and the procedural justice of impartiality in safe and regulated environments. As in games, simulations temporarily remove the participants from their daily routines, political pressures, and the restrictions of real-life protocols. In consensus building, participants engage in extensive debate and need to act on a shared set of meanings and beliefs to guide the policy process in the desired direction