# App state 1AC round 4 vs Florida PV 1NC- Productionism K, R+D first CP, Fisc Cliff, NNSA Da, CASE

### Plan

#### The United States Department of Defense should procure small modular reactors for use on military bases in 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.

#### 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.

#### 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.”

#### Bioterror causes extinction

Ochs ‘02

**(**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 tothe continuedsurvivalof 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**,** canget out of controlvery 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.

### Advantage 2 is nuclear expertise

#### New US nuclear power demand causes nuclear expertise revival

APS ‘08

APS (American Physical Society), Report from the APS Panel on Public Affairs Committee on Energy and Environment, June 2008, Readiness of the U.S. Nuclear Workforce for 21st Century Challenges, http://www.aps.org/policy/reports/popa-reports/upload/Nuclear-Readiness-Report-FINAL-2.pdf

The 21st century has brought a growing realization that it is time to reexamine the adequacy of the U.S. nuclear workforce and its ability to deal with many old and new challenges our nation faces. This report draws attention to critical shortages in the U.S. nuclear workforce and to problems in maintaining relevant educational modalities and facilities for training new people. This workforce comprises nuclear engineers, nuclear chemists, radiochemists, health physicists, nuclear physicists, nuclear technicians, and those from related disciplines. As a group they play critical roles in the nation’s nuclear power industry, in its nuclear weapons complex, in its defense against nuclear and other forms of terrorism, and in several aspects of healthcare, industrial processing, and occupational health and safety. Each of these areas presents significantly more dramatic challenges than it did not very many years ago. Each is an important aspect of our national security.¶ Nuclear Power: Past and Present¶ Workforce shortages in the arena of commercial nuclear power, and the problem of maintaining modernized training facilities, mainly stem from the 30-year stasis in U.S. demand for new civilian nuclear power plants1. The number of operating civilian nuclear reactors in the U.S. has remained at about 100 during this time. Thus, U.S. vendors have been forced to look abroad for sales. Some have either ceased construction of new reactors entirely or else significantly scaled back business in this area. Their continuing, largely static, nuclear engineering workforce needs have been met through a combination of hiring those trained in university nuclear engineering programs and retraining others whose original expertise was in some other field (usually mechanical engineering). Retirees from the nuclear Navy also have played an important role.¶ A natural result of this stasis was for many years a greatly reduced interest among undergraduates in nuclear science and engineering programs2. In turn, this put great pressure on U.S. universities to scale back in these areas. Recently, however, the Federal government, through the Department of Energy (DOE), dramatically increased funding for these educational efforts. This played a major role in increasing undergraduate student enrollments in nuclear engineering from a low point of 480 in 1999 to 1,933 in 2007. Declaring the problem to be solved, DOE called for the termination of its university nuclear science and engineering programs for FY 2007. Congress in turn provided reduced funding for FY 2007 and transferred all the programs except reactor fuel services to the Nuclear Regulatory Commission (NRC) for FY 2008. These “feast or famine” gyrations have led to significant instabilities: the number of university nuclear engineering departments has decreased from 66 in the early 1980s to 30 today, and the number of university reactors has dwindled from 63 to 25 during essentially the same period.

#### Revitalized nuclear expertise vital to stockpile stewardship and nuclear forensics

Mtingwa ‘09

(Chair of the POPA study on the Readiness of the U.S. Nuclear Workforce for 21st Century Challenges. He is an accelerator physicist and Senior Lecturer at MIT. “Readiness of the U.S. Nuclear Workforce for 21st Century Challenges,” January, http://www.aps.org/units/fps/newsletters/200901/mtingwa.cfm)

On another front, the tragedy of September 11, 2001, has brought an intense focus on the issue of national preparedness against terrorism. For emergencies involving a terrorist action or an accident at a nuclear reactor, experts must be ready to respond. Thus it is important to attend to the nuclear workforce needs of the Department of Homeland Security, the Department of Defense, the NRC, and specialized areas of the Department of Energy. An important example of the latter is the Nuclear Emergency Support Team from DOE’s National Nuclear Security Administration that travels to the site of a suspected nuclear or radiological weapon to mitigate the situation. Thus, the nation will need to expand its nuclear workforce to initiate new efforts in nuclear forensics and other parts of the Homeland Security portfolio, and to replace many retiring members of the weapons workforce.¶ For many years, funding for U.S. university nuclear science and engineering research and education has been heavily dependent upon a single source: previously DOE and now the NRC. Therefore, it is no accident that the vitality of the nation’s university nuclear science and engineering education and infrastructure program closely tracked funding support provided by DOE over the last 15 years. As shown in Fig. 1, as DOE’s funding increased in the decade 1997 through 2007, undergraduate student enrollment in nuclear engineering increased – from a low of 480 students in 1999 to a high of 1,933 in 2007. For nuclear engineering students at minority-serving institutions, DOE support created new opportunities. While other factors also contributed to the dramatic increase in undergraduate enrollments, university administrators indicate that increases in Federal funding were indeed an important factor. In the aftermath of the accidents at Three Mile Island in 1979 and Chernobyl in 1986, DOE support for nuclear science and engineering education declined precipitously as industry construction of new plants ceased and student interest and career opportunities declined. In 1997, the President’s Committee of Advisors on Science and Technology issued a report that urged President Clinton to reinvest in university nuclear science and engineering research and education . PCAST also urged him to establish the Nuclear Energy Research Advisory Committee to provide advice to DOE on this reinvestment. In the mid-1990s, the Clinton Administration recognized the potential for a resurgence in nuclear technology, and constituted NERAC in 1998 to advise DOE as it began reinvesting both funds and management attention to rebuilding the educational infrastructure for nuclear science and engineering. This support was implemented by creating a suite of eleven targeted programs, among which perhaps the most influential was the Innovations in Nuclear Infrastructure and Education (INIE) program, which encouraged the development of strategic consortia among universities, DOE national laboratories, and industry.¶ When DOE released its FY2007 budget request, it announced that it had completed its mission in the area of nuclear science and engineering education and made plans to terminate the program. DOE proposed essentially zero funding for nuclear science and engineering education for both FY2007 and FY2008. This signaled a significant reversal of fortune not seen since the early 1990s. DOE proposed to return to the practice of those years by providing only basic fuel services for university research reactors under a new infrastructure program. In FY2007, Congress rejected DOE’s proposal to terminate the program and instead provided $16.5 million – far less than the $27 million the program received in FY2006. In FY2008, Congress again rejected ending the program and allocated $17.9 million in the FY2008 Consolidated Appropriations Act. Of this amount, $2.9 million remained at DOE for university reactor fuel services, and Congress transferred to the NRC $15 million for the rest of the programs. While these funds would defer to some extent the erosion of nuclear science and engineering education in the U.S., they are not sufficient to maintain vital elements of the nation’s programs, particularly the highly successful INIE program. It was last funded in FY2006. As for nuclear chemistry and radiochemistry, these are two fields that overlap in many ways. Simply put, radiochemistry is the study of radioactive elements using chemical techniques, focusing on their radioactive characteristics. Nuclear chemistry is the study of the fundamental properties of nuclei, both radioactive and non-radioactive, using chemical techniques. It is quite close to the field of nuclear physics.¶ There has been a continuing dramatic decrease in the number of Ph.D.s earned annually in nuclear chemistry, as shown in Fig. 2. It reflects the fact that only a handful of U.S. university chemistry departments currently have professors with active research programs in nuclear chemistry. Thus, advanced education in nuclear chemistry education is all but extinct in the United States. If nuclear chemistry and radiochemistry education programs are not reinvigorated, the U.S. will lack the expertise required to pursue promising advanced R&D in a myriad of disciplines. In addition to processing both fresh and spent fuel for nuclear reactors, including basic research on spent fuel separations and transmutation technologies, nuclear chemistry and radiochemistry are also extremely important to the nation’s security and health in the following cross-cutting roles: (1) nuclear weapons stockpile stewardship, (2) nuclear forensics and surveillance of clandestine nuclear activities, (3) monitoring of radioactive elements in the environment, (4) production of radioisotopes, and (5) preparation of radiopharmaceuticals for therapeutic and diagnostic medical applications.¶ When considering the nuclear enterprise, the status of the health physics workforce and its training facilities must be considered. For occupational safety and the protection of the public, health physics professionals are employed in many sectors, including the commercial nuclear power industry, DOE’s national laboratories, homeland security, the NRC, the military and medical facilities.¶ The nation’s health physics capabilities will be impacted negatively over the next decade due to the number of expected retirements, coupled with inadequate numbers of graduates entering the field. Fig. 3 provides data on health physics graduates. Considering that the retirement rate of health physicists in the U.S. is roughly 200 per year , the number of health physics graduates does not allow for much increase in the demand for their services.¶ Turning to university research and training reactors, their number has decreased from 63 in the late 1970’s to 25 today. Recently a number of them have been decommissioned, including those at Cornell University and the University of Michigan. During FY2006, DOE’s INIE Program provided $9.41 million to six consortia consisting of both the higher power (usually 1 MW and above) research reactors as well as the lower power (usually less than 1 MW) training reactors. Research reactors mainly perform state-of-the-art experiments and provide irradiation services for private industry and other researchers. Training reactors mainly provide hands-on experiences for students. The INIE program had numerous significant successes, including helping to increase the number of students studying nuclear science and engineering, stimulating the hiring of new tenure-track faculty, providing seed money for a number of major infrastructure and instrumentation purchases and upgrades, fostering collaborations among members of each consortium and with national laboratories, freeing a number of university reactors from threats of decommissioning, assisting with the establishment of a nuclear technology Associate’s degree program at Linn State Technical College in Missouri, and helping to establish a new undergraduate nuclear engineering program at South Carolina State University, one of the Historically Black Colleges and Universities . That program is the first to be created in over a quarter-century at any U.S. university and is the only undergraduate nuclear engineering program located at an HBCU . Nuclear physicists are an indispensable part of the workforce, since a wealth of high precision actinide fission and neutron capture cross section data is needed to support the design of future nuclear reactors, including advanced light water reactors and Generation IV systems . Without such data, simulation studies would not be accurate enough to lead to reliable designs and conclusions . From their systems analyses, DOE researchers have identified the cross sections of particular importance. The U.S. has neutron source facilities, such as the Los Alamos Neutron Science Center, that can be used for many of the cross section measurements, and capabilities not present in the U.S. usually can be found elsewhere . Many of the cross section measurements are extremely challenging and entirely new techniques need to be developed. Moreover, much more fundamental work is needed to understand the basic physics of nuclear isotopes and their various cross sections. A better theoretical understanding would reduce the uncertainties in many applications. All of these issues are fertile ground for Ph.D. research.¶ Next, to evaluate the supply of nuclear engineers with at least a Bachelor’s degree that is needed for nuclear power generation between now and 2050, it is useful to consider three scenarios: (1) maintaining the current number of nuclear reactors (about 100) without reprocessing, (2) doubling the number of reactors without reprocessing fuel, and (3) doubling the number of reactors while closing the fuel cycle by reprocessing and recycling spent fuel.¶ Due to the shortage of nuclear engineers over recent decades, reactor vendors have resorted to hiring far more mechanical engineers than nuclear engineers and providing them with nuclear-related training. With approximately 35% of nuclear workers reaching retirement age in the next five years , industry will likely see some increase in engineering hiring across the board. This will heighten demands for nuclear engineering education, whether supplied by university programs or by the employers themselves. Scenario 1 has a chance of being sustainable. On the other hand, doubling the number of nuclear reactors to about 200 by 2050 will require a significant augmentation of the nuclear workforce. Vendors, utilities, and the NRC will need to increase their ranks by about 300 engineers with some nuclear training per year, plus replace retirees. This growth in manpower is a direct result of what would be an increasing demand for significantly improved reactor designs, increased reactor operations at the utilities, and a much greater oversight burden at the NRC. On the other hand, the number of new nuclear engineering graduates at all degree levels entering nuclear employment is about 160. Hence, assuming that the supply of nuclear engineers coming from university training programs follows recent trends, employers will need to train significantly more non-nuclear engineers to do nuclear engineering tasks than they do now. It is doubtful that the massive reactor building campaigns necessary to double the number of reactors by 2050 could thrive under such a burden. The clear message is that our capability for university-based training of nuclear scientists and engineers cannot be allowed to diminish further. Scenario 3 is the most problematic. This scenario has all the workforce challenges of Scenario 2, plus the need for highly trained nuclear chemists and radiochemists who are indispensable for reprocessing. Unlike France, the U.S. has no governmental agency charged with educating nuclear chemists and radiochemists. Those wanting to pursue these fields are educated under faculty mentors at universities. The growing scarcity of such mentors has thus led to a crisis in the U.S. In the long haul, the U.S. will lose ground in its R&D on many fronts, including devising more efficient and safer methods of processing both fresh and spent fuels for all future nuclear energy scenarios. Nuclear chemists and radiochemists with Ph.D.s would be needed to train the large cadre of radiochemical technicians who would carry out most of this work, and they would be needed at universities and national laboratories to spearhead the research that leads to breakthrough radiochemical technologies. Thus, any venture into spent fuel reprocessing, and fulfilling nuclear chemists’ and radiochemists’ many other cross-cutting roles in such areas as homeland security and public health, will not be possible unless expertise is imported from abroad. This modality is made much more difficult by the requirement that many of these workers must be U.S. citizens. In the U.S., market-driven forces will not be able to produce additional domestically trained nuclear chemists and radiochemists if the educational infrastructure continues to disappear. Aside from nuclear power, the nation will continue to need a significant number of talented, well-trained nuclear scientists and engineers to maintain the strength of its homeland security and nuclear weapons programs. These complexes must be safeguarded, and this is a clear responsibility of the Federal government. To satisfy these and nuclear power’s demands on the nuclear workforce, the Federal government should stabilize the long-term funding and management of nuclear science and engineering education programs, in particular for the university research and training reactor facilities. The number of nuclear engineering departments and university reactors should not be allowed to diminish further. Also, existing reactors could be utilized more optimally by expanding distance-learning opportunities. As for nuclear chemistry and radiochemistry, there is a huge need for the Federal government to establish a cross-cutting workforce initiative that includes fellowships and scholarships for students, support for postdoctoral researchers, incentives that stimulate industrial support of faculty positions, effective means of outreach to the general public, and increased support for summer schools in these disciplines. For health physics, the Federal government should ensure that there is a sufficient number of faculty with nuclear reactor-related experience to train the necessary numbers of health physicists for the nuclear power and other industries. Finally, the Federal government should increase support for research on the fundamental physics and chemistry of actinide fission and neutron capture. There is also an educational role for private industry. Nuclear vendors and utilities should expand undergraduate student internships, graduate student traineeships, cooperative education opportunities, and training on reactor simulators at their facilities. To conclude, creating new reactor designs, revolutionary medical applications of radiation, and many other nuclear endeavors present exciting challenges. As such, the nuclear science and engineering community should develop programs to encourage the general public to view these fields as exciting areas of research that present intellectually and financially rewarding career paths.

#### Key to credible nuclear deterrence

Browne et al ‘08

John C. Browne, Los Alamos National Laboratory (retired), Clark Murdock, Center for Strategic and International Studies, Francis Slakey, American Physical Society, Benn Tannenbaum, American Association for the Advancement of Science, Jessica Yeats, Center for Strategic and International Studies, December 2008, Nuclear Weapons in 21st Century U.S. National Security, http://csis.org/files/media/csis/pubs/081208\_nuclear\_weapons\_report.pdf

To maintain a credible nuclear deterrent, the United States should sustain the necessary human capital: as much of the existing workforce ages, experience, expertise and competence will likely decline across the nuclear enterprise including the Department of Defense (DOD), Department of Energy (DOE), and the military services. A broader mission for the nuclear weapons labs that addresses energy security as well as nuclear security interests can help recruit, retain, and sustain highly skilled and motivated scientists and engineers.

#### Loss of U.S. nuclear deterrence causes nuclear war

Caves ‘10

(John P, Senior Research Fellow in the Center for the Study of Weapons of Mass Destruction at the National Defense University, January, Strategic Forum, No. 252, “Avoiding a Crisis of Confidence in the U.S. Nuclear Deterrent,”)

Perceptions of a compromised U.S. nuclear deterrent as described above would have profound policy implications, particularly if they emerge at a time when a nuclear-armed great power is pursuing a more aggressive strategy toward U.S. allies and partners in its region in a bid to enhance its regional and global clout. A dangerous period of vulnerability would open for the United States and those nations that depend on U.S. protection while the United States attempted to rectify the problems with its nuclear forces. As it would take more than a decade for the United States to produce new nuclear weapons, ensuing events could preclude a return to anything like the status quo ante. The assertive, nuclear-armed great power, and other major adversaries, could be willing to challenge U.S. interests more directly in the expectation that the United States would be less prepared to threaten or deliver a military response that could lead to direct conflict. They will want to keep the United States from reclaiming its earlier power position. Allies and partners who have relied upon explicit or implicit assurances of U.S. nuclear protection as a foundation of their security could lose faith in those assurances. They could compensate by accommodating U.S. rivals, especially in the short term, or acquiring their own nuclear deterrents, which in most cases could be accomplished only over the mid- to long term. A more nuclear world would likely ensue over a period of years. Important U.S. interests could be compromised or abandoned, or a major war could occur as adversaries and/or the United States miscalculate new boundaries of deterrence and provocation. At worst, war could lead to state-on-state employment of weapons of mass destruction (WMD) on a scale far more catastrophic than what nuclear-armed terrorists alone could inflict.

### Advantage 3 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:/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

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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.

### 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

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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

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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.

#### 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.

#### 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

#### 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 – fisc cliff, CP, case

### Islanding

#### Microgrids don’t solve- turn off the renewables during outages

Sater ‘11

(Daniel, Research Fellow at Global Green USA’s Security and Sustainability Office in ¶ Washington, DC in the summer of 2011. He is a graduate student at the Frank Batten School of ¶ Leadership and Public Policy at the University of Virginia. Daniel holds a BA in Foreign Affairs ¶ from UVA and will receive his Master of Public Policy degree in May 2012. “Military Energy Security: Current Efforts and Future Solutions” <http://www.globalgreen.org/docs/publication-185-1.pdf>, SEH)

Microgrids are not without their drawbacks. Similar to the problems with the departing load ¶ charge utilities levy on installations that produce renewable energy, many utilities try to restrict ¶ the use of renewable energy generation as backup power during a power outage. The utilities’ ¶ reasoning is that, if there was any electricity in the grid during an outage, their workers would be ¶ at risk while repairing any damage. According to the GAO, four out of five installations it visited.

#### Deterrence solves ensures stability

BBC News ‘05

[September 1, Lexis]

On the one hand, as an integral part of the global security order, the international arms control, disarmament and nonproliferation regime is still playing an important role in safeguarding world peace and stability. Since the 1990s, fresh achievements have been scored in arms control, disarmament and nonproliferation. A number of important treaties have been concluded in such areas as the prohibition of chemical weapons and nuclear tests. The international consensus has been constantly strengthened on preventing the proliferation of WMD. The UN Security Council has unanimously adopted Resolution 1540 on nonproliferation. Political and diplomatic efforts have been continuously pursued to settle proliferation issues through dialogue and cooperation. Initiatives on strengthening the nonproliferation regime have been introduced. Security dialogues have been intensified among countries and regional security cooperation has been expanded. The aforementioned progress has enhanced mutual trust among countries, boosted the relaxation of the security situation and maintained international strategic stability. On the other hand, there is still a long way to go in multilateral arms control and disarmament. The process of nuclear disarmament has been long and arduous. The nuclear deterrence strategy based on the first use of nuclear weapons has yet to be abandoned. The trend towards lowering the threshold for the use of nuclear weapons and developing new nuclear weapons is worrisome. There has been greater danger of weaponization of and an arms race in outer space. The universality of international treaties on arms control is still inadequate and negative examples of scrapping important arms control treaties occur from time to time. The multilateral arms control and disarmament regime is faced with difficulty. As the single multilateral disarmament negotiating body, the Conference on Disarmament (CD) in Geneva has for years been unable to carry out substantive work. The international nonproliferation process is facing challenges. The prospect for settling regional nuclear issues is still blurry and the risks of terrorist organizations and other non-state entities acquiring WMD are growing. Currently, the international process of arms control, disarmament and nonproliferation is at a crucial crossroad. It is an absolute necessity for the maintenance of international peace, security and stability to seize fresh opportunities, meet new challenges and consolidate and constantly strengthen the existing international regime on arms control, disarmament and nonproliferation. This also conforms to the people's will. The international community is in favour of maintaining multilateralism, pushing forward the international process of arms control and disarmament, constantly improving the international nonproliferation regime, stepping up international cooperation and coping with security challenges.

### Exp

#### We have expertise – Navy 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 generation to not only take over supporting the operation of our existing fleet, but also the design and construction of new plants.¶

### Solvency

#### The DoD is exempt from NRC regulations

US-NRC 12

(“§ 50.11 Exceptions and exemptions from licensing requirements” <http://www.nrc.gov/reading-rm/doc-collections/cfr/part050/part050-0011.html>, date last updated, SEH)

§ 50.11 Exceptions and exemptions from licensing requirements.¶ Nothing in this part shall be deemed to require a license for:¶ (a) The manufacture, production, or acquisition by the Department of Defense of any utilization facility authorized pursuant to section 91 of the Act, or the use of such facility by the Department of Defense or by a person under contract with and for the account of the Department of Defense;

### Fiscal Cliff 2AC

**No Deal- Tea Party or white house caving is inevitable**

**Collender 9-26**

Stan is a former staffer on both the House and Senate budget committees, founder of the blog “Capital Gains and Games,” and a partner at Quorvis Communications, where he works with clients in the financial sector, “Boehner May Have to Let the Debt Ceiling Happen to Stay Speaker,”

I've come to the conclusion that House Speaker John **Boehner** (R-OH**) is going to have a** very **difficult time making any deal with** the **Democrats during the lame duck** session on taxes and spending – that is, on preventing the fiscal cliff – **and still remain as speaker** in the next Congress. **That means** that **avoiding the fiscal cliff will be** far **harder than any analysis** of the situation **has dared to conclude**.¶ Yes, this assumes that Republicans will keep the majority in the House next year and, therefore, that the GOP will be picking one of its own as speaker. But just consider what would happen if the following occurs.¶ No matter who wins the presidency and is in the majority in the Senate, the GOP retains control in the House.¶ **Boehner wants to stay as speaker** even if House Republicans lose some seats and their majority gets smaller.¶ **The smaller GOP majority will prompt some to insist** **that Boehner should not be speaker** in the next Congress. (**Given the tea party wing’s distrust of Boehner** since at least the beginning of 2011, it’s not at all clear that there won’t be some effort to unseat him even if the GOP doesn’t lose seats in the 2012 election.)¶ **In other words, Boehner will be on a very short leash** during the lame duck **and will have to continually prove to his tea party wing that he merits its support**. Unless Democrats are willing to do something almost unimaginable and vote for **Boehner**, he **cannot remain as speaker** **without the tea party wing’s votes**.¶ **But Boehner isn’t likely to get tea party support if he shows any willingness to compromise with congressional Democrats or** (perhaps especially) the **Obama** White House **on extending the tax cuts and preventing the military spending portion of the sequester**.¶ This means **there can’t be a quick deal** of any kind on fiscal cliff-related policies **because of the tea party’s mantra that** concluding **a deal** long **before the deadline means** that **you are** probably **leaving something on the table**.¶ It also likely means that **any deal will be very difficult because** of **the tea party** **wing’s other basic tenet that compromise** of any kind (**and especially when it comes to taxes) is a sin**.¶ There will be a GOP caucus meeting during the lame duck at which the Republican candidate for speaker will be chosen and, in theory, that will settle the matter before the fiscal cliff is triggered at midnight January 1. But…and it’s a big but…t**he formal election of the speaker won’t occur until the new Congress convenes** in early **January after all of the fiscal cliff** spending and tax **changes have kicked in**. That will give Boehner watchers and opponents another bite at the apple weeks after the caucus decision. In other words, **Boehner will be on that very short leash into January** and nothing will really be settled before the cliff happens**.**¶ **Boehner has already shown that he’s more than willing to take positions to accommodate his tea party wing so he can stay as speaker**. For example, **his** fire-and-brimstone **speech in May when he insisted that he would not allow the debt ceiling to be raised** again **unless federal spending was cut** by the same number of dollars the borrowing limit is raised – as basic a tea party position as there is -- was clearly an effort to show that faction of his party that he was one of them and totally worthy of their support. **There’s no reason to think Boehner won’t do that** and more **again.**¶ **This scenario makes a deal to avert the fiscal cliff far less likely than anyone is assuming**. Indeed, **if the White House doesn’t cave to GOP demands, it almost seems as if Boehner will have to let the fiscal cliff happen to keep his job**. It also seems to indicate that the most likely agreement will be one that stops the cliff from being implemented fully through the year after it has been triggered.¶ There are a number of reasons why this scenario might not play out.¶ For example, a total capitulation to the GOP by the White House might be more likely than it current seems. After all, **the administration did that before when it came to letting the tax cuts expire in 2010**.¶ Or Romney might get elected and the GOP will go with Boehner because it will assume that it will be able to fix what it doesn’t like after the inauguration.¶ Or the tea party wing will realize that not supporting Boehner when the House convenes in January wouldn’t make a great deal of sense because that could mean that the Democratic nominee would get the greatest number of votes and be elected speaker. That might force the tea party wing to have to decide who it dislikes more: Boehner or Nancy Pelosi (D-CA).¶ To avoid this, the GOP caucus would have to make it clear to Boehner before the formal vote that he does not have enough support to be elected and, therefore, should step aside. The question at that point would be whether Boehner would have the testicular fortitude to play extreme political hardball, not withdraw and dare his own party to vote against him.¶ And it’s certainly also possible that after the election Boehner will become a much stronger speaker than he has been over the past two years and figure out a way to get the GOP caucus to go along with a compromise before the fiscal cliff occurs. On the one hand, he succeeded in doing something like that a few weeks ago when he convinced his caucus to vote for the fiscal 2013 continuing resolution with a higher spending level than many in the tea party wing wanted. On the other hand, Boehner was rolled repeatedly over the past two years by the tea party on taxing and spending issues and it may revert back to that previous take-no-prisoners attitude once the election is over.¶ **Bottom line:** **The odds of the fiscal cliff happening are greater than most people are currently willing to admit.**

**Farm Bill Thumps**

**Farm Press 9-20**

“Boehner Confirms No Farm Bill until Lame Duck Session,” <http://deltafarmpress.com/government/boehner-confirms-no-farm-bill-until-lame-duck-session>

On Thursday morning (September 20), House Speaker John **Boehner confirmed** that **the House will** not **take up the “farm bill** issue” until **after November** elections. Current law is set to expire at the end of this month.¶ The announcement is hardly a surprise with House leadership having repeatedly refused to allow floor time for the farm bill passed out of the House Agriculture Committee in early July. The full Senate passed its farm bill in June.

**DOD doesn’t link**

**Appelbaum 12**

**Binyamin Appelbaum 12, Defense cuts would hurt scientific R%26D, experts say, The New York Times, 1-8-12,** <http://hamptonroads.com/2012/01/defense-cuts-would-hurt-scientific-rd-experts-say>

Sarewitz, who studies the government's role in promoting innovation, said **the Defense Department had been more successful than other federal agencies because it is the main user of the innovations that it finances.** The Pentagon, which spends billions each year on weapons, equipment and technology, has an unusually direct stake in the outcome of its research and development projects.¶ "The central thing that distinguishes them from other agencies is that they are the customer," Sarewitz said. "You can't pull the wool over their eyes."¶ **Another factor is the Pentagon's relative insulation from politics, which has allowed it to sustain a long-term research agenda in controversial areas. No matter which party is in power, the Pentagon has continued to invest in clean-energy technology,** for example, in an effort to find ways to reduce one of its largest budget items, energy costs.

#### Plan’s popular - only 1 vote against it and both parties cosponsor

Pendidikan ‘11

Cinta writes for the Love and Like Education Blog, “Sanders is the Sole Vote Against Small Modular Reactor Research,” <http://loveandlikeeducation.blogspot.com/2011/08/bernie-sanders-and-small-modular.html>

Sanders is Sole Vote Against Small Modular Reactor Research¶ Bernie Sanders and Small Modular Reactors¶ Senator Bernie Sanders often speaks about his opposition to Vermont Yankee as having something to do with the age of the plant, the fact it is owned by Entergy, or his "state's rights" stance about regulating nuclear power plants.¶ Recently, however, Sanders made it clear that he is against nuclear power in any form and is proud of that opinion. On Senator Sanders website, he featured the fact that he was the only vote against "a pair of measures that would promote the development of small modular reactors."¶ One of these measures was the Nuclear Power Act S512. This act would authorize the Secretary of Energy to start a cost-shared program for development of small modular reactors (SMRs).¶ This act had strong bi-partisan support, being sponsored by 3 Republican and 4 Democratic Senators. The act requires research and development funds for SMRs. The Act is still in process, and does not have a firm dollar amount attached, but the dollar amount is likely to be small (in government terms, at least.). Current estimates are $100 million per fiscal year for four years, starting next year.¶ The act also requires that industry cost-share the expense. If industry doesn't think it is worth spending money on the research, the research will not receive government funding either.¶ As a background to the probable cost of this Act, we should note that President Obama requested $4.8 billion dollars for Department of Energy research, of which $3.2 billion is allocated for renewable energy and energy efficiency research. (This number has changed with the debt deal, but new numbers are not available at this time.)¶ Small Modular Reactors for The Future¶ Sander's opposition to this Nuclear Power Act will hurt America's chances to develop an important new exportable technology. Outside of Europe, the nuclear renaissance remains in full swing, with reactors being ordered and built in Arabia, China, India and Southeast Asia. Developing a strong set of SMR designs would be America's best chance to re-entering the world market for nuclear power.¶ SMRs are modular (assembled in a factory and delivered to the site), small (50 to 225 MW) and have many safety features, such as passive cooling. SMRs are expected to have a huge international market. They suitable for many places that do not have the population density or money for the current crop of huge reactors (1200 MW, built on site at great expense). SMRs would make nuclear power affordable and salable many places.¶ Westinghouse and Babcock & Wilcox have invested significant amounts of their own money in developing these products. The NRC is also active in assessing preliminary designs. At another Senate committee meeting on SMRs, Commissioner Magwood of the NRC said that he does not expect decisions made by the NRC to be the critical factor in the success or failure of SMRs. Magwood noted that SMRs have passive safety features and large water inventories; these would be considered during license review.¶ America Fallen Behind¶ America has fallen far behind the rest of the world in most nuclear technologies. Pressurized Water Reactors (PWRs) and Boiling Water Reactors (BWRs) were developed in this country. They are being sold all over the world, but not by United States companies. We're out of the running. Other countries licensed and improved our original technologies. Companies from France, Korea, Russia and China compete to build large reactors in China, Arabia, and Southeast Asia.¶ Three American companies have put millions of dollars into the development of SMRs: Westinghouse, Babcock & Wilcox, and NuScale (a small start-up). Many people in the nuclear industry feel that the race to develop the first successful SMR is a truly high-stakes race, being fought at the level of nationwide efforts. Luckily, SMR development has bi-partisan support, and Mr. Sanders was alone in his opposition to supporting American industry efforts to develop these plants.¶ Should Government Be Involved?¶ Of course, one can make a case that the government should get out of the energy research business altogether. If Senator Sanders wished to save tax dollars by cutting all energy-research programs, he might have a valid case. However, if the government does plan to spend money on energy research, cost-sharing with industry on a new nuclear technology is certainly a far better use of funds than many of the projects in the swollen DOE renewable budget.

#### --Plan is has bipart support and doesn’t require PC. Obama is not involved.

#### Winners win

Marshall and Prins, 2011

Bryan W. MARSHALL AND PRINS 11, Miami University, Department of Political Science AND Brandon C. PRINS, University of Tennessee & Howard H. Baker, Jr. Center for Public Policy, September 2011 “Power or Posturing? Policy Availability and Congressional Inﬂuence on U.S. Presidential Decisions to Use Force”, Presidential Studies Quarterly, http://onlinelibrary.wiley.com/doi/10.1111/j.1741-5705.2011.03885.x/pdf, [Stolarski]

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

#### --Disad’s non-intrinsic to the plan - can pass the plan and vote to raise the pass the fiscal cliff – rational decisionmaker calculus

#### --Introduction of the plan should have caused the link – controversy happens even if you vote neg

#### Political capital isn’t key

Dickinson 9 professor of political science at Middlebury College (Matthew, “Sotomayor, Obama and Presidential Power,” May 26, 2009 Presidential Power <http://blogs.middlebury.edu/presidentialpower/2009/05/26/sotamayor-obama-and-presidential-power/>]

What is of more interest to me, however, is what her selection reveals about the basis of presidential power. Political scientists, like baseball writers evaluating hitters, have devised numerous means of measuring a president’s influence in Congress. I will devote a separate post to discussing these, but in brief, they often center on the creation of legislative “box scores” designed to measure how many times a president’s preferred piece of legislation, or nominee to the executive branch or the courts, is approved by Congress. That is, how many pieces of legislation that the president supports actually pass Congress? How often do members of Congress vote with the president’s preferences? How often is a president’s policy position supported by roll call outcomes? These measures, however, are a misleading gauge of presidential power – they are a better indicator of congressional power. This is because how members of Congress vote on a nominee or legislative item is rarely influenced by anything a president does. Although journalists (and political scientists) often focus on the legislative “endgame” to gauge presidential influence – will the President swing enough votes to get his preferred legislation enacted? – this mistakes an outcome with actual evidence of presidential influence. Once we control for other factors – a member of Congress’ ideological and partisan leanings, the political leanings of her constituency, whether she’s up for reelection or not – we can usually predict how she will vote without needing to know much of anything about what the president wants. (I am ignoring the importance of a president’s veto power for the moment.) Despite the much publicized and celebrated instances of presidential arm-twisting during the legislative endgame, then, most legislative outcomes don’t depend on presidential lobbying. But this is not to say that presidents lack influence. Instead, the primary means by which presidents influence what Congress does is through their ability to determine the alternatives from which Congress must choose. That is, presidential power is largely an exercise in agenda-setting – not arm-twisting. And we see this in the Sotomayer nomination. Barring a major scandal, she will almost certainly be confirmed to the Supreme Court whether Obama spends the confirmation hearings calling every Senator or instead spends the next few weeks ignoring the Senate debate in order to play Halo III on his Xbox. That is, how senators decide to vote on Sotomayor will have almost nothing to do with Obama’s lobbying from here on in (or lack thereof). His real influence has already occurred, in the decision to present Sotomayor as his nominee. If we want to measure Obama’s “power”, then, we need to know what his real preference was and why he chose Sotomayor. My guess – and it is only a guess – is that after conferring with leading Democrats and Republicans, he recognized the overriding practical political advantages accruing from choosing an Hispanic woman, with left-leaning credentials. We cannot know if this would have been his ideal choice based on judicial philosophy alone, but presidents are never free to act on their ideal preferences. Politics is the art of the possible. Whether Sotomayer is his first choice or not, however, her nomination is a reminder that the power of the presidency often resides in the president’s ability to dictate the alternatives from which Congress (or in this case the Senate) must choose. Although Republicans will undoubtedly attack Sotomayor for her judicial “activism” (citing in particular her decisions regarding promotion and affirmative action), her comments regarding the importance of gender and ethnicity in influencing her decisions, and her views regarding whether appellate courts “make” policy, they run the risk of alienating Hispanic voters – an increasingly influential voting bloc (to the extent that one can view Hispanics as a voting bloc!) I find it very hard to believe she will not be easily confirmed. In structuring the alternative before the Senate in this manner, then, Obama reveals an important aspect of presidential power that cannot be measured through legislative boxscores.

**Middle East War doesn’t escalate- Syria and Arab Spring Prove.**

**No global escalation**

**Dyer 2**

(Gwynne, former appointments to the Royal Military College Sandhurst and Oxford University, former member of three different armed services, Winter, "The Coming War," Queen's Quarterly, Expanded Academic ASAP)

All of this indicates an extremely dangerous situation, with many variables that are impossible to assess fully. But there is one comforting reality here: **this will not become World War III**. Not long ago, wars in the Middle East always went to the brink very quickly, with the Americans and Soviets deeply involved on opposite sides, bristling their nuclear weapons at one another. And for quite some time we lived on the brink of oblivion. But that is over. World War III has been cancelled, and I don't think we could pump it up again no matter how hard we tried. **The connections that once tied Middle Eastern confrontations to a global confrontation involving** tens of thousands of **nuclear weapons have all been undone. The** East-West **Cold War is finished**. The truly dangerous powers in the world today are the **industrialized countries** in general. We are the ones with the resources and the technology

**No impact--White House averts for months**

**WSJ 9-27**

“Guessing the Fiscal Cliff’s Fate,” <http://online.wsj.com/article/SB10000872396390444083304578018743732814484.html>

**If a sequester is triggered, the White House** budget office **has considerable flexibility in how to allocate** the **cuts** over the year. **If talks were continuing, it could soften the** initial **blow**. Similarly, the Treasury secretary could delay changing tax-withholding tables for a while, which means workers wouldn't feel the tax increases immediately. "**We can go off the cliff without much if any real** [budget] **impact for a month or two," says** Barry **Anderson, who was the top civil servan**t in the budget office in 1991**, the last time there was a sequester.**

### Production (Florida)

#### 1. Case is a disad to the K.

#### A) Cyber attack coming and the grid is weakening and could go down robitaille ‘12 that takes out surveillance capabilities which are preventing terrorists in the squo that’s Defense Science Board ’08 and NSB ’12 and we can’t get off the grid because of lack of coordination that’s GAO ’09 means guaranteed extinction from bioterror attack with the weapons terrorists groups obtain from Syria that’s Blair 12 and Lilliefors ’12 results in extinction that’s ochs ‘02

#### B) SMR development is inevitable it’s only a question of who leads that’s Hiruo ’10 China is on the verge of gaining nuclear leadership now that’s wheeler ’12, leading to Chinese aggression in the south china sea that risk multiple scenarios for conflicts, that Blank ’10 and Goh ‘08

#### C) Reinvigorating the nuclear industry now is key to nuclear stockpiling and credibility APS ’08 and Mtingwa ’09, and that’s key to credible nuclear deterrence preventing nuclear war Browne et al ’08 and Caves ‘10

#### 2. Consequentialism is the only way to determine impacts – all life is equally valuable

Cummisky 1996 (David, professor of philosophy at Bates, Kantian Consequentialism, p. 131)

Finally, even if one grants that saving two persons with dignity cannot outweigh and compensate for killing one—because dignity cannot be added and summed this way—this point still does not justify deontological constraints. On the extreme interpretation, why would not killing one person be a stronger obligation than saving two persons? If I am concerned with the priceless dignity of each, it would seem that I may still save two; it is just that my reason cannot be that the two compensate for the loss of one. Consider Hill’s example of a priceless object: If I can save two of three priceless statutes only by destroying one, then I cannot claim that saving two is not outweighed by the one that was not destroyed. Indeed, even if dignity cannot be simply summed up, how is the extreme interpretation inconsistent with the idea that I should save as many priceless objects as possible? Even if two do not simply outweigh and thus compensate for the loss of one, each is priceless; thus, I have good reason to save as many as I can. In short, it is not clear how the extreme interpretation justifies the ordinary killing/letting-die distinction or even how it conflicts with the conclusion that the more persons with dignity who are saved, the better.

#### 3. Perm do the plan and all non-mutually exclusive parts of the alternative

#### 4. Perm: do both. If the alternative solves then it can solve any residual links to the perm.

#### 5. Perm do the plan and the alt in all other instances. Either the alt only rejects the aff and can’t overcome the squo or the alt can and the perm shields the link.

#### 6. Either the alt doesn’t do the aff and then the case is a disad to the alternative, or it does the aff and is a floating pic which are bad for fairness and education

#### 7. Our interpretation is that the ballot is a referendum on the plan versus the status quo or a competitive policy option—You should evaluate the consequences of the plan and alternative—reject their nebulous framework—destroys politics and is infinitely regressive which makes predictability and 2AC offense impossible

#### 8. Revitalized nuclear industry is key to social and economic equality—boosting the economy gives everyone a leg up.

Oxford Economics ‘08

(“Economic, Employment and ¶ Environmental Benefits of Renewed ¶ U.S. Investment in Nuclear Energy” <http://www.nuclearcompetitiveness.org/images/Oxford_State_Benefits.pdf>, SEH)

**This study highlights the potential benefits that would accrue to the US economy as a result of an** ¶ **investment program to maintain the generation capacity of the US nuclear energy industry**. These ¶ benefits break down as follows: ¶ • Direct, indirect and induced **employment and value added benefits of the investment phase: up** ¶ **to 270,000 jobs and almost $34 billion of GDP at peak**. ¶ • **Direct, indirect and induced employment and value added benefits of the operations phase: over** ¶ **95,000 jobs and roughly $12 billion of GDP at peak** ¶ • Savings of up to 400 million tones of CO2 emissions ¶ • Savings of up to $49 billion of fossil fuel imports ¶ • **Creation of around 45,000 high-tech, high value added manufacturing jobs that would otherwise** ¶ **be lost** ¶ These effects would be distributed across states partly according to the likely location of the new plants, ¶ but also due to the concentration of key manufacturing industry. Some of the largest benefits are ¶ expected to be found in states such as Texas and Illinois which are expected to invest heavily in new ¶ nuclear capacity. However, states such as California will also see significant benefit due to the supply of ¶ key manufactured products. ¶ **There are other benefits, too, that we do not consider in this study, but which are likely to be important.** ¶ **These are potential areas for further research:** ¶ • **The R&D and fixed investment that would be associated with the manufacturing jobs above would** ¶ **be very likely to generate substantial spillover benefits, boosting the productivity that could be** ¶ **achieved by other sectors of the US economy.** ¶ **• The growth in nuclear industry expertise and the associated manufacturing capacity that would** ¶ **flow from the investment program would position the USA to reclaim the lead in the global nuclear** ¶ **energy industry, potentially an important source of comparative advantage and export earnings in** ¶ **the long term.** ¶ **• The savings in terms of oil and gas consumption could free up that oil and gas for more** ¶ **productive uses in the chemicals and plastics industries.**

#### 9. Consumption and consumerism are inevitable and build ethical democratic solidarity

Cohen 2

(Patricia, Writer for the New York Times, citing James B. Twitchell, Professor of English at the University of Florida, “In Defense Of Our Wicked, Wicked Way”, The New York Times, July 7, <http://www.clas.ufl.edu/users/jtwitche/nytimesarticle.pdf>)

''I CAN stand here and look at this for hours,'' said James B. Twitchell as he parked himself in front of the bottled water section in City Market, just past the jars of $30-per-pound teas and behind the eight-foot display of imported olive oils.¶ Mr. Twitchell, a professor of English at the University of Florida in Gainesville, specializes in the Romantic poets, but his real obsession is shopping. Given the choice of reading literary theorists like Foucault or gazing at shelves stacked with artfully shaped bottles of water piled up like Jay Gatsby's beautifully tailored shirts, he would quickly choose the latter. ''There is more that I can sustain myself with at the water aisle than in all of modern criticism,'' he said.¶ In a series of books, the latest of which is ''Living It Up: Our Love Affair With Luxury'' (Columbia University Press), Mr. Twitchell has detailed the consumption habits of Americans with all the scholarly delight of a field anthropologist who has discovered the secret courting rituals of a remote tribe. He is exquisitely attuned to the subtle gradations of status conferred by the labels on what people wear, eat, drink, drive and freeze ice cubes in.¶ And he is not alone. Whether prompted by the 90's spendathon or the endless fascination not only with shopping, but with reading about shopping, a new title by an academic or journalist on the subject appears practically every week. Burlington, where Mr. Twitchell grew up and where he now spends summers, was singled out by David Brooks in his wickedly funny ''Bobos in Paradise'' as a model Latte Town, a city that has perfectly reconciled the mercenary instincts of the bourgeoisie with the artistic spirit of the bohemians to create an upscale consumer culture.¶ What distinguishes Mr. Twitchell's study of excessive consumerism, though, is that he applauds it. To him, Evian and Pellegrino, Vermont Pure and Dasani are evidence of what could be called his trickledown theory of luxury: that the defining characteristic of today's society is the average person's embrace of unnecessary consumption, superficial indulgence, wretched excess and endless status-seeking. Oh, earthly paradise!¶ Once defined by exclusiveness, luxury is now available -- whether in the form of limited-edition coffee at Starbucks or Michael Graves tea kettles at Target -- to all. And that, Mr. Twitchell maintains, is a good thing. Sure, he argues in his book, buying essentially useless luxury items ''is one-dimensional, shallow, ahistorical, without memory and expendable. But it is also strangely democratic and unifying. If what you want is peace on earth, a unifying system that transcends religious, cultural and caste differences, well, whoops!, here it is. The Global Village is not the City on the Hill, not quite the Emerald City, and certainly not quite what millennial utopians had in mind, but it is closer to equitable distribution of rank than what other systems have provided.''¶ That is, to say the least, a minority report. For centuries, philosophers, artists and clerics railed against luxury. Ecclesiastical courts forbade most people from eating chocolate, drinking coffee or wearing colors like Prussian blue and royal purple -- ''luxuria'' that signaled living above one's God-ordered place.¶ Thorstein Veblen offered the first modern critique of ''conspicuous consumption'' in his 1899 treatise ''The Theory of the Leisure Class.'' Post-World War II social critics and economists extended Veblen's critique to the expanding middle class. John Kenneth Galbraith warned in ''The Affluent Society'' of the binge afflicting the postwar generation. Unwitting consumers, he said, were essentially suckered by admen and salesmen into spending money on things they didn't need.¶ In his 1970 study ''The Cultural Contradictions of Capitalism'' Daniel Bell argued that ''the culture was no longer concerned with how to work and achieve, but with how to spend and enjoy.'' This trend, he warned, could end up undermining the very work ethic that made capitalism function.¶ That, obviously, did not happen. If anything people worked more so they could spend more. In ''The Overspent American,'' Juliet B. Schor noted that people no longer compared themselves with others in the same income bracket, but with the richer and more famous they saw on television, propelling them to spend more than they could afford.¶ To Mr. Twitchell, the naysayers are scolds and spoilsports. Indoor plumbing, sewing machines, dishwashers, college educations, microwaves, coronary bypasses, birth control and air travel all began as luxury items for the wealthy.¶ Nor are buyers mindlessly duped by canny advertisers into buying items they don't really want, he said. Quite the opposite. They enjoy the sensual feel of an Hermès silk tie, the briny delicacy of Petrossian caviar or simply the sensation of indulging themselves. These things may not bring happiness, but neither does their absence from the lives of people too poor to afford them.¶ It may seem an odd moment to champion luxury. The spectacular boom of the 90's now looks as if it was partly built on spectacular sleight of hand, with Enron, Global Crossing, Adelphia and WorldCom all recently admitting that billions in reported profits were nonexistent. The moment seems ripe for a chastened culture to repent its indulgences. Reassessing the get-and-spend ethic -- not defending consumerism -- might well be the defining current of the next few years.¶ The problem with Mr. Twitchell's view, said Robert H. Frank, author of ''Luxury Fever,'' is that our sense of what we need to live comfortably keeps spiraling upward. It is not that luxury spending isn't good for particular individuals, but that it is bad for society overall. ''It's like when everybody stands up for a better view, you don't see better than before,'' Mr. Frank said from his home in Ithaca. There's a lot of waste in luxury spending. Instead of building safer roads or providing better health care, we are spending that money on bigger diamonds and faster cars.¶ Mr. Twitchell is unpersuaded, however. Walking down Church Street, Burlington's busy pedestrian mall, he pointed out the transformation that the consumer culture has wrought in his hometown. Lean and tanned, with cropped gray hair and rounded tortoise-shell glasses, Mr. Twitchell looks a bit like Dennis the Menace's father after Dennis has grown up, moved across the country and given his old man a few years to recover. ''Church Street once serviced needs, now it services desires,'' Mr. Twitchell said. The optician's shop is gone, and so is Sears and JCPenney. He pointed out the Ann Taylor store, where the Masonic temple used to be. A chic French children's store sits in the old bank.¶ ''The key to modern luxe is that most of us can have a bit of it on the plate,'' Mr. Twitchell said. ''I can't own a Lexus, but I can rent one. I can't go to Bermuda for a winter, but I can have a time share for a weekend. I don't own a yacht but I'm taking a Princess cruise.''¶ The process of democratization is mirrored in Mr. Twitchell's family history. His great-grandfather Andrew A. Buell made his fortune building wooden boxes from Adirondack lumber. Driving up Lodge Road to ''the hill,'' where Mr. Buell built a red stone Romanesque mansion with a copper-topped tower, Mr. Twitchell passed the Burlington Country Club, which his grandfather Marshall Coleman Twitchell helped found. The family's sprawling former home is now a women's dormitory, and the surrounding 66-acre estate serves as the University of Vermont's Redstone campus. A couple of blocks from the hilltop, both in location and status, is the relatively modest white wooden house that Mr. Twitchell, the son of Marshall Coleman Twitchell Jr., an ophthalmologist, and his sisters grew up in.¶ At that time, said Mr. Twitchell, now 59, one's social place was determined by birth, or ''what I call the lucky sperm culture.'' Today, birth-ordained status has been supplanted by store-bought status. Mr. Twitchell has no regrets about this lost world. ''Though I was a beneficiary of it, I'm glad it's over,'' he said. ''There is something refreshing about the material world that downtown Burlington opened up.'' Compared to the traditional ways of marking status -- race, parentage, accent, private schools -- one's purchases are a preferable way of telling who's up and who's down, he said.¶ On that point, Mr. Twitchell is not alone. Gary Cross, a historian at Penn State University, said that consumer culture in one sense is ''democracy's highest achievement, giving meaning and dignity to people when workplace participation, ethnic solidarity and even representative democracy have failed.''¶ Still, as Mr. Cross argued in 2000 in ''An All-Consuming Century: Why Commercialism Won in Modern America,'' ''most of us, no matter our politics, are repulsed by the absolute identity of society with the market and individual choice with shopping.''¶ True enough, Mr. Twitchell readily conceded. But he maintains the critics are missing the essential characteristic of luxury spending. ''Luxury has very little to do with money or things,'' he said. ''Luxury is a story we tell about things,'' and it's ultimately the story we are after. That is, our purchases are imbued with elaborate narratives about the life we want to live.¶ It is advertisers and manufacturers who give objects meaning by constructing the stories about them, Mr. Twitchell said, and that meaning is as much a source of desire as the object itself. Think of the elaborate fantasies spun by marketers like Ralph Lauren and Martha Stewart.¶ It goes for whatever you're buying, whether it's Jimmy Choo, Birkenstock or Payless shoes. When Mr. Twitchell, a dedicated factory outlet shopper, flashes his member's card at Sam's Club, ''the allure is not just that I'm saving money,'' he said, ''but that I'm smarter and savvier, that I'm duping the duper.''¶ Or consider an experiment he performed on his colleagues. He told some English professors that he was going to spend $6,000 to buy an 1850 copy of Wordsworth's ''Prelude.'' Brilliant idea, everyone said. A few days later, Mr. Twitchell told the same colleagues that he had changed his mind and was going to use the $6,000 to buy a used BMW. ''I could have said that I was investing in a collection of Beanie Babies comics or a diamond pinkie ring for the shocked response that I got,'' he wrote.¶ Critics of consumption will say they are making a moral argument, Mr. Twitchell said, but ''often what is condemned as luxury is really just a matter of taste.''¶ To Mr. Twitchell, as long as human beings crave sensation, they will desire material goods and luxurious ones at that, Wall Street scandals notwithstanding. ''If this year it's Enron and WorldCom, then another year it was Long-Term Capital Management,'' he said.¶ Recessions may come and go, but consumption is eternal. The ad slogan is right: Diamonds are forever.

#### 10. SMR’s alone are sufficient to solve emissions- global spillover

Rosner, et al. ’11

(Robert Rosner, Robert Rosner is an astrophysicist and founding director of the Energy Policy Institute at Chicago. He was the director of Argonne National Laboratory from 2005 to 2009, and Stephen Goldberg, Energy Policy Institute at Chicago, The Harris School of Public Policy Studies, Joseph S. Hezir, Principal, EOP Foundation, Inc., Many people have made generous and valuable contributions to this study. Professor Geoff Rothwell, Stanford University, provided the study team with the core and supplemental analyses and very timely and pragmatic advice. Dr. J’Tia Taylor, Argonne National Laboratory, supported Dr. Rothwell in these analyses. Deserving special mention is Allen Sanderson of the Economics Department at the University of Chicago, who provided insightful comments and suggested improvements to the study. Constructive suggestions have been received from Dr. Pete Lyons, DOE Assistant Secretary of Nuclear Energy; Dr. Pete Miller, former DOE Assistant Secretary of Nuclear Energy; John Kelly, DOE Deputy Assistant Secretary for Nuclear Reactor Technologies; Matt Crozat, DOE Special Assistant to the Assistant Secretary for Nuclear Energy; Vic Reis, DOE Senior Advisor to the Under Secretary for Science; and Craig Welling, DOE Deputy Office Director, Advanced Reactor Concepts Office, as well as Tim Beville and the staff of DOE’s Advanced Reactor Concepts Office. The study team also would like to acknowledge the comments and useful suggestions the study team received during the peer review process from the nuclear industry, the utility sector, and the financial sector. Reviewers included the following: Rich Singer, VP Fuels, Emissions, and Transportation, MidAmerican Energy Co.; Jeff Kaman, Energy Manager, John Deere; Dorothy R. Davidson, VP Strategic Programs, AREVA; T. J. Kim, Director—Regulatory Affairs & Licensing, Generation mPower, Babcock & Wilcox; Amir Shahkarami, Senior Vice President, Generation, Exelon Corp.; Michael G. Anness, Small Modular Reactor Product Manager, Research & Technology, Westinghouse Electric Co.; Matthew H. Kelley and Clark Mykoff, Decision Analysis, Research & Technology, Westinghouse Electric Co.; George A. Davis, Manager, New Plant Government Programs, Westinghouse Electric Co.; Christofer Mowry, President, Babcock & Wilcox Nuclear Energy, Inc.; Ellen Lapson, Managing Director, Fitch Ratings; Stephen A. Byrne, Executive Vice President, Generation & Transmission Chief Operating Officer, South Carolina Electric & Gas Company; Paul Longsworth, Vice President, New Ventures, Fluor; Ted Feigenbaum, Project Director, Bechtel Corp.; Kennette Benedict, Executive Director, Bulletin of the Atomic Scientist; Bruce Landrey, CMO, NuScale; Dick Sandvik, NuScale; and Andrea Sterdis, Senior Manager of Strategic Nuclear Expansion, Tennessee Valley Authority. The authors especially would like to acknowledge the discerning comments from Marilyn Kray, Vice-President at Exelon, throughout the course of the study, “Small Modular Reactors – Key to Future Nuclear Power”, <http://epic.uchicago.edu/sites/epic.uchicago.edu/files/uploads/SMRWhite_Paper_Dec.14.2011copy.pdf>, November 2011,)

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. Theycouldbe deployed in regionsof the U.S. and the worldthat have less potential forother forms of carbon-free electricity, such assolar 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, astrongU.S. commercialization program canenable U.S.industryto be firsttomarketSMRs**,** therebyserving as a fulcrum for export growth as well as a lever in influencinginternational decisions on deploying **both** nuclear reactorand nuclear fuel cycletechnology. 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**.**

#### 11. Extinction- tipping point

Dyer ‘12

London-based independent journalist, PhD from King's College London, citing UC Berkeley scientists (Gwynne, "Tick, tock to mass extinction date," The Press, 6-19-12, l/n, accessed 8-15-12, mss)

Meanwhile, a team of respected scientists warn that life on Earth may be on the way to an irreversible "tipping point". Sure. Heard that one before, too. Last month one of the world's two leading scientific journals, Nature, published a paper, "Approaching a state shift in Earth's biosphere," pointing out that more than 40 per cent of the Earth's land is already used for human needs. With the human population set to grow by a further two billion by 2050, that figure could soon exceed 50 per cent. "It really will be a new world, biologically, at that point," said the paper's lead author, Professor Anthony Barnofsky of the University of California, Berkeley. But Barnofsky doesn't go into the details of what kind of new world it might be. Scientists hardly ever do in public, for fear of being seen as panic-mongers. Besides, it's a relatively new hypothesis, but it's a pretty convincing one, and it should be more widely understood. Here's how bad it could get. The scientific consensus is that we are still on track for 3 degrees C of warming by 2100, but that's just warming caused by human greenhouse- gas emissions. The problem is that +3 degrees is well past the point where the major feedbacks kick in: natural phenomena triggered by our warming, like melting permafrost and the loss of Arctic sea-ice cover, that will add to the heating and that we cannot turn off. The trigger is actually around 2C (3.5 degrees F) higher average global temperature. After that we lose control of the process: ending our own carbon- dioxide emissions would no longer be enough to stop the warming. We may end up trapped on an escalator heading up to +6C (+10.5F), with no way of getting off. And +6C gives you the **mass extinction**. There have been five mass extinctions in the past 500 million years, when 50 per cent or more of the species then existing on the Earth vanished, but until recently the only people taking any interest in this were paleontologists, not climate scientists. They did wonder what had caused the extinctions, but the best answer they could come up was "climate change". It wasn't a very good answer. Why would a warmer or colder planet kill off all those species? The warming was caused by massive volcanic eruptions dumping huge quantities of carbon dioxide in the atmosphere for tens of thousands of years. But it was very gradual and the animals and plants had plenty of time to migrate to climatic zones that still suited them. (That's exactly what happened more recently in the Ice Age, as the glaciers repeatedly covered whole continents and then retreated again.) There had to be a more convincing kill mechanism than that. The paleontologists found one when they discovered that a giant asteroid struck the planet 65 million years ago, just at the time when the dinosaurs died out in the most recent of the great extinctions. So they went looking for evidence of huge asteroid strikes at the time of the other extinction events. They found none. What they discovered was that there was indeed major warming at the time of all the other extinctions - and that the warming had radically changed the oceans. The currents that carry oxygen- rich cold water down to the depths shifted so that they were bringing down oxygen- poor warm water instead, and gradually the depths of the oceans became anoxic: the deep waters no longer had any oxygen. When that happens, the sulfur bacteria that normally live in the silt (because oxygen is poison to them) come out of hiding and begin to multiply. Eventually they rise all the way to the surface over the whole ocean, killing all the oxygen-breathing life. The ocean also starts emitting enormous amounts of lethal hydrogen sulfide gas that destroy the ozone layer and directly poison land- dwelling species. This has happened many times in the Earth's history.

### 2AC

#### 1. NNSA faces 1 billion in budget cuts – Office of management and budget report

Quinn 9/19

(Melissa Quinn Journalist for the Daily Caller “White House estimates $1 billion cut to nuclear security in looming ‘sequester’” 6:36 PM 09/19/2012 <http://dailycaller.com/2012/09/19/white-house-estimates-1-billion-cut-to-nuclear-security-in-looming-sequester/>, TSW)

According to a report released by the Office of Management and Budget (OMB), the Obama administration has recommended cutting more than $1 billion from the National Nuclear Security Administration (NNSA) — an agency designed to protect against the spread of nuclear weapons — in the event the congressional budget stalemate results in so-called “sequestration” of a large portion of federal budget dollars planned for 2013 spending.¶ The report, unveiled last week, came in response to the Sequestration Transparency Act. In 2011 Congress passed the Budget Control Act, planning additional budget cuts if lawmakers failed to strike a budget deal through the “super committee.”¶ According to the estimates that the OBM called “preliminary,” the NNSA faces more than $1 billion in cuts, the most of any program in the Department of Energy. The White House estimates a $678 million cut from weapons programs, $216 million from defense nuclear nonproliferation, $102 million from naval reactors and $39 million from administrative costs.

#### 2. NNSA can’t keep up with hiring the right people for lab success

Gwilliam ‘12

(Gary Gwilliam is considered one of the best consumer trial attorneys in the state. His reputation and skill in representing seriously injured plaintiffs is well known. He has tried 150 jury cases, of which more than 100 were personal injury cases. “Government Accountability Office Report Chides NNSA for Human Capital Management Practices” MAY 22, 2012 <http://gwilliamlawfirm.com/2012/05/government-accountability-office-report-chides-nnsa-for-human-capital-management-practices/>, TSW)

Privatization of the lab’s management was supposed to lead to greater efficiency and increased employment, but instead it led to cutbacks that have left the lab with around 6,800 permanent employees, down from some 9,400 in 2005.”¶ Consequently, the GAO determined that the NNSA is “not effective in monitoring contractor’s recruitment and retention processes because it doesn’t have consistent definitions for charting human capital strategy.” Due to the fact that contractors do not provide specific information to the NNSA, the NNSA can not make enterprise wide decisions that could effectively maintain and ensure current and future workforces’ possess the critical skills necessary for each lab’s progress and success.

#### 3. Link turn, NNSA poorly manages labs, directors want them out – Y-12 incident and reports prove

Rampton 9/12

Roberta Rampton of Reuters “RPT-After 'Fort Knox' break-in, US nuclear stockpile security in focus” Wed Sep 12, 2012 4:29pm IST http://in.reuters.com/article/2012/09/12/usa-security-nuclear-idINL1E8KANW720120912,TSW)\*\*Note: The Y-12 National Security Complex is a United States Department of Energy National Nuclear Security Administration facility located in Oak Ridge, Tennessee, near the Oak Ridge National Laboratory, where a security breach occurred.\*\*

LEGACY OF POOR MANAGEMENT¶ The Energy Department's Inspector General found multiple failures of sophisticated security systems and "troubling displays of ineptitude" in a review of what happened at Y-12.¶ The government budgeted about $150 million for security at the facility, which is run by Babcock & Wilcox Co with security provided by contractor WSI Oak Ridge, owned by international security firm G4S.¶ The investigation into the Y-12 incident found that security officers failed to follow protocol, and also noted that a security camera that would have shown the break-in had been broken for about six months, part of a backlog of repairs needed for security systems at the facility.¶ The NNSA and its contractors removed some staff and supervisors and the government told Babcock & Wilcox last month that its contract could be terminated.¶ The NNSA, created in 2000 after a national laboratory employee was accused of stealing nuclear secrets for China, has had a long struggle with containing costs.¶ The Government Accountability Office last year said the Energy Department's "record of inadequate management and oversight of contractors has left the department vulnerable to fraud, waste, abuse, and mismanagement."¶ About 40 percent or $11 billion of the department's total budget goes to the NNSA, which oversees a network of eight government-owned laboratories and facilities run by contractors.¶ A bipartisan task force in 2009 recommended a governance overhaul to fix problems created by an "excessively bureaucratic" culture.¶ The laboratories have chafed under what they call redundant and "overly prescriptive" government rules that they say waste scarce resources.¶ In April, the directors of the three weapons labs issued a series of recommendations to overhaul governance, giving the labs more flexibility and cutting back on NNSA oversight.¶ "Many reports by independent committees have found the micromanagement of the NNSA labs is debilitating and costly, and other reports have called for increased oversight," the directors said in their recommendations.¶ "While these findings appear to be in opposition, one conclusion is clear - the governance of the NNSA labs is broken and must be changed," they said.

#### 4. NNSA is always a day late and a dollar short

Priest 9/15

(Dana Priest is a national security reporter whose work focuses on intelligence and counterterrorism. “Aging U.S. nuclear arsenal slated for costly and long-delayed modernization” September 15 2012 <http://www.washingtonpost.com/world/national-security/us-nuclear-arsenal-is-ready-for-overhaul/2012/09/15/428237de-f830-11e1-8253-3f495ae70650_print.html>, TSW)

Chronic poor planning¶ Much of the blame for the soaring costs has fallen on the National Nuclear Security Administration, the division of the Department of Energy responsible for managing and modernizing the nuclear stockpile. For years, the Government Accountability Office, the Pentagon and some lawmakers have cited the NNSA for chronic poor planning and bad management. The GAO has had the NNSA on its “high-risk list” for fraud, waste and abuse in contracting and management since 1990.¶ Government reports show that the NNSA has blown budgets across the board. For instance, the projected cost of a new weapons conversion facility at the DOE’s Savannah River Site in South Carolina rose to $5 billion from $1.4 billion. It was eventually scrapped — after $700 million in planning costs. The cost of building a new fuel fabrication facility at Savannah River also has tripled to $5 billion, and it is scheduled to open in 2016, a decade late.¶ The George W. Bush administration’s solution to NNSA’s chronic problems was to transfer management of the national laboratories to profit-making corporations in 2008. Privatization was supposed to cut costs and boost efficiency, but GAO investigators and lawmakers say it is not clear that either has happened.¶ One concern is unexplained increases in administrative costs, which have reached about 40 percent of the labs’ budget, according to figures provided by NNSA. In fact, the annual contracts to run the facilities are among the largest in government — nearly $2.6 billion a year to operate Los Alamos and $2.4 billion for Sandia National Laboratories in Albuquerque.¶ The Defense Department became so alarmed by NNSA’s construction record that it recently embedded a team at the agency to examine books and management practices and come up with more realistic cost figures for projects under consideration.¶ Republicans say they support increased spending on the nuclear arsenal, but last year they were unable to muster the votes to fund the president’s entire budget request.

### CP

#### Conditionality is bad and should lose them the debate.

#### 1. Reciprocity: aff doesn’t get conditional advantages or plan

#### 2. Strat Skew: splits the 2AC. Read impact turns and they’ll kick it ; read add ons and they’ll solve them.

#### 3. Risk free offense: they can straight turn the case and still go for the K.

#### 4. One conditional advocacy solves their offense.

#### 5. Multiple worlds: forces us to read contradictory answers on the different positions, which means we always link to one of them

#### Perm: do both

#### Perm: do the CP

Normal means solves

King et al 11

Marcus King et al 11, Associate Director of Research, Associate Research Professor of International Affairs, Elliot School of International Affairs, The George Washington University, et al., March 2011, “Feasibility of Nuclear Power on U.S. Military Installations,” <http://www.cna.org/sites/default/files/research/Nuclear%20Power%20on%20Military%20Installations%20D0023932%20A5.pdf>

A reactor owner/operator, typically a utility, will select a site and may apply for an early site permit from the NRC. They select a reactor design, (certified under a separate process), to construct on the site and then apply for a combined operating license. Construction begins after approval.¶ With respect to the requirement to “consider the potential impact on the quality of life of personnel stationed at military installations at which a nuclear power plant is installed and ways to mitigate those impacts,” it is impossible to talk in specific terms without knowing details about which specific power plant is being considered and the specific locations being considered. In general terms, finding an appropriate site will be challenging. Part of the reason finding an appropriate site will be challenging is because the NRC site consideration process will force full consideration of these factors. Describing the NRC site assessment process is the best and most relevant information that can be provided with respect to this aspect of feasibility at this stage in the process. The NRC approval process described in this section will require that any potential impacts on the quality of life of personnel stationed at military installations at which a nuclear power plant is proposed will be fully considered and that ways are planned to mitigate those impacts.

#### SMR will adhere to best safety standards – solves meltdown risk

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)

We are also continuing R&D around seismic hazards and seismic effects, and recently, we published a body of work around filtering strategies informing the global conversation around how to minimize the potential for land contamination. There is a lot of work ongoing and a lot of progress being made. But there is still a significant amount to be done.¶ Cheri Collins: The AP1000 design has many of the features already incorporated into it that were being talked about through the NRC 90-day Fukushima task force. Of course our fleet has responded as every other fleet in the United States has responded as these gentlemen have laid out. Safety being our No. 1 priority, we will always look for applications of lessons learned to make our facilities even safer.¶ Ric Perez: Most of us in the industry know this but, sometimes it is lost by the broader community: the design certification process, especially for the AP1000, happened in the latter half of 2011 after the Fukushima accident; so, whether it be the 90-day NRC report or even the COL public hearings that occurred afterward by the NRC commissioners, a great deal of the knowledge and lessons learned have been already woven into the new reactor rules published by the NRC.¶

#### No meltdowns - computer models, impact overstated, and plants are safe

Cappiello 3/29

Dina Cappiello 3/29/11¶ (Huffington Post contributor, “Long Blackouts Pose Risk To U.S. Nuclear Reactors,” http://¶ [www.huffingtonpost.com/2011/03/29/blackout-risk-us-nuclear-reactors\_n\_841869.html](http://www.huffingtonpost.com/2011/03/29/blackout-risk-us-nuclear-reactors_n_841869.html))

For instance, preliminary results of the latest analysis of the risks to the Peach Bottom plant show that any release caused by a blackout there would be far less rapid and would release less radiation than previously thought, even without any actions being taken. With more time, people can be evacuated. The NRC says improved computer models, coupled with up-to-date information about the plant, resulted in the rosier outlook.¶ "When you simplify, you always err towards the worst possible circumstance," Scott Burnell, a spokesman for the Nuclear Regulatory Commission, said of the earlier studies. The latest work shows that "even in situations where everything is broken and you can't do anything else, these events take a long time to play out," he said. "Even when you get to releasing into environment, much less of it is released than actually thought."¶ Exelon Corp., the operator of the Peach Bottom plant, referred all detailed questions about its preparedness and the risk analysis back to the NRC. In a news release issued earlier this month, the company, which operates 10 nuclear power plants, said "all Exelon nuclear plants are able to safely shut down and keep the fuel cooled even without electricity from the grid."

#### No deaths from nuclear meltdowns

Drum 11 Kevin, political blogger for Mother Jones, "Nukes and the Free Market", March 14, www.motherjones.com/kevin-drum/2011/03/nukes-and-free-market

We’re currently told that the death toll in Japan will be at least 10,000 people of whom approximately zero seem to have perished in nuclear accidents. What happens when a tsunami hits an offshore drilling platform or a natural gas pipeline? What happens to a coal mine in an earthquake? How much environmental damage is playing out in Japan right now because of gasoline from cars pushed around? The main lesson is “try not to put critical infrastructure near a fault line” but Japan is an earthquakey country, so what are they really supposed to do about this?¶ This is a good point: energy sources of all kind cause problems. Sometimes the problems create screaming headlines (nuke meltdowns, offshore oil explosions, mining disasters) and sometimes they don't (increased particulate pollution, global warming, devastation of salmon runs). But the dangers are there for virtually every type of energy production.¶ Still, it's worth pointing out that the problem with nuclear power isn't so much its immediate capacity to kill people. As Matt points out, no one has died in Japan from the partial meltdowns at its damaged nuclear plants, and it's unlikely anyone ever will. The control rods are in place, and even in the worst case the containment vessels will almost certainly restrict the worst damage.

# 1AR 2NR- CP

#### Military procurement is key

Andres and Breetz 11

(Richard B. Andres is 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. Hanna L. Breetz is a doctoral candidate in the Department of Political Science at the Massachusetts institute of technology, “Small Nuclear Reactors ¶ for Military Installations:¶ Capabilities, Costs, and ¶ Technological Implications” Institute for National Strategic Studies, <http://www.ndu.edu/press/lib/pdf/strforum/sf-262.pdf>, SEH)

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

### 1AR No Pass

#### There will be no fiscal cliff. Boehner sees the Tea Party as key support to retain his position as speaker, and he is willing to make decisions in order to keep his job. The tea party doesn’t want to compromise. All evidence says he won’t cave. That’s Collender.

### 1AR DOD Shields

#### The Pentagon is historically shielded from political matters. They pass energy policy under both parties. That’s Applebaum.

### 1AR Plan Popular

#### SMRs are popular – there is only 1 vote against it both parties cosponsor the plan – that’s the Pendidikan 11 evidence

#### No risk of a focus link. Because it has necessary support, Obama won’t have to spend any time or political capital on it.

#### SMR incentives are bipartisan---recent bills prove

King et al 11

Marcus, Associate Director of Research at The George Washington University's Elliott School of International Affairs, with a concurrent appointment as Associate Research Professor of International Affairs, LaVar Huntzinger and Thoi Nguyen, "Feasibility of Nuclear Power on U.S. Military Installations", March, www.cna.org/sites/default/files/research/Nuclear Power on Military Installations D0023932 A5.pdf

Favorable public perception has contributed to bipartisan congressional interest in building new nuclear capacity. Congress has introduced several bills that provide funding for new nuclear research and incentives for the nuclear industry. The Enabling the Nuclear Renaissance Act (ENRA) under consideration by the Senate contains many of the nuclear provisions found in previously introduced bills. In the area of small reactor technology, the legislation directs the Department of Energy (DOE) to develop a 50 percent cost-sharing program with industry, and it provides government funding at the rate of $100 million per year for 10 years. The bill also calls for the establishment of a program office within DOE to manage community led initiatives to develop “energy parks” on former DOE sites. The energy parks may include nuclear power plants [11

### 1AR Winners Win

#### Winners win – Marshall and Prins 11 says policy success breeds success – it boosts Obama’s reputation for political effectiveness