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# dod adv

#### DoD bases are vulnerable to grid disruptions which destroys command infrastructure – 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.

#### Those communication breakdowns go nuclear

Andres and Breetz 11

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

#### China will shut down the US grid and annex Taiwan – global nuclear war

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(Glenn – Defense Analyst @ Popular Mechanics, “How Vulnerable is U.S. Infrastructure to a Major Cyber Attack?” October 1, 2009, http://www.popularmechanics.com/technology/military/4307521)

The next world war **might not start with a bang, but with a blackout**. An enemy could send a few lines of code to control computers at key power plants, causing equipment to overheat and melt down, plunging sectors of the U.S. and Canadian grid into darkness. Trains could roll to a stop on their tracks, while airport landing lights wink out and the few traffic lights that remain active blink at random. In the silence and darkness, citizens may panic, or they may just sit tight and wait for it all to reboot. Either way, much of the country would be blind and unresponsive to outside events. **And that might be the enemy's objective: Divert America's attention while mounting an offensive against another country.** Pentagon planners have long understood the danger of cyber attacks on U.S. military networks. Indeed, the Defense Department's Global Information Grid is one of the most frequently targeted computer networks on Earth. But the cat-and-mouse game of information espionage on military networks is not the only digital threat that keeps national-security experts up at night. There is a growing concern over the vulnerability of far more tangible assets essential to the economy and well-being of American citizens. Much of the critical infrastructure that keeps the country humming--water-treatment facilities, refineries, pipelines, dams, the electrical grid--is operated using a hodgepodge of technologies known as industrial control systems. Like banks and telecommunications networks, which are also generally considered critical infrastructure, these industrial facilities and utilities are owned by private companies that are responsible for maintaining their own security. **But many of the control systems in the industrial world were installed years ago with few or no cyber-security features**. That wasn't a big problem when these systems were self-contained. But in the past two decades, many of these controls have been patched into company computer networks, which are themselves linked to the Internet. And when it comes to computer security, a good rule of thumb is that any device that is computer-controlled and networked is vulnerable to hacking. Bad-guy hackers pulling the plug on public utilities is a common theme of Hollywood films, including 2007's Live Free or Die Hard, but such scenarios present more than a mere fictional scare to U.S. intelligence officials. According to Melissa Hathaway, cyber-coordination executive for the Office of the Director of National Intelligence, the list of potential adversaries in a cyber attack is long, ranging from disgruntled employees to criminals to hostile nations. Most experts agree that China and Russia routinely probe our industrial networks, looking for information and vulnerabilities to use as leverage in any potential dispute. James Lewis, a cyber-security expert for the policy think tank Center for Strategic and International Studies (CSIS), says that although cyber warfare couldn't cripple the U.S., it could serve as an effective military tactic. "If I were China, and I were going to invade Taiwan," he says, "and I needed to complete the conquest in seven days, then it's an attractive option to turn off all the electricity, screw up the banks and so on." Could the entire U.S. grid be taken down in such an attack? "The honest answer is that we don't know," Lewis says. "And I don't like that answer."

#### Unification causes south china sea conflict

Nancy Bernkopf Tucker, The Washington Quarterly, If Taiwan Chooses Unification, Should the United States Care?, SUMMER 2002.

In practical terms, concern about a future threat from China encompasses the strategic advantages that unification with Taiwan would bring to Beijing. Probably more significant than any other factor, by eliminating China’s needs to build toward a hostile takeover of Taiwan, to protect itself from Taiwan, and to plan for a potential conflict with the United States over Taiwan, unification could release a significant percentage of China’s resources. The People’s Liberation Army (PLA) would be free to change its priorities, redeploy its forces, and reconceptualize its strategic objectives. For Washington, this change means a less predictable, more flexible, and potentially less-burdened opponent, though one still noted for its lack of transparency. Beijing’s recovery of Taiwan could in fact lead to a more significant projection of Chinese naval and air power beyond coastal waters. With the continuing need to manage a maritime frontier that includes disputed interests in the South China Sea, China might be tempted to contest the U.S. military presence in the region and strive for greater force-projection capabilities. Although China has pledged that Taiwan under “one country, two systems” will retain its own autonomous military and that the PLA will not station units on the island, no absolute guarantees are protecting crucial sea lanes carrying oil and other sensitive goods past Taiwan. Commercial channels from the South China Sea do not generally pass through the Taiwan Strait but do parallel the east coast of Taiwan, coming as close as 75 nautical miles, as ships travel north toward Japan, Korea, and Russia. These transportation routes would be more vulnerable to interruption by China if Taiwan were under Beijing’s control. Indeed, China has at times been less than scrupulous about respecting international waters. Angered by Canberra’s support for Washington in the EP-3 spy plane crisis in 2001, China harassed an Australian naval flotilla, claiming it had intruded into Chinese waters as it sailed through the Taiwan Strait, even though the strait is an international waterway under the United Nations Law of the Sea Convention.8 As former U.S. ambassador to China James R. Lilley has noted, Taiwan “is the cork in China’s bottle.” China’s reclamation of Taiwan would “end what China feels to be a blockade on its abilities to control its surrounding seas.” With Taiwan in mainland hands, Lilley observes, Beijing could diminish the potential vulnerability it feels because “as much as 50 percent of China’s economy depends on foreign trade, about 90 percent of which is transported by ship.”9 In addition, the enhancement of Beijing’s maritime security would almost certainly alarm Japanese military planners. A Chinese presence along Japan’s shipping routes and abutting its Ryukyu island chain would risk giving Beijing an opportunity to “strangle the world’s second-largest economy.” Further, China would gain greater proximity to disputed oil and natural gas fields in the Senkaku/Diaoyutai area. During the 1996 Taiwan Strait crisis, when Tokyo and Washington were revising their defense agreements to clarify mutual obligations, China’s aggressive use of missiles led the normally cautious Japanese to agree to a tougher set of commitments than first intended. Tokyo sought to make clear to Beijing that neither intimidating Taiwan nor disturbing the peace in areas around Japan was acceptable.

#### Nuclear war

Wittner 11 (Lawrence S. Wittner, Emeritus Professor of History at the State University of New York/Albany, Wittner is the author of eight books, the editor or co-editor of another four, and the author of over 250 published articles and book reviews. From 1984 to 1987, he edited Peace & Change, a journal of peace research., 11/28/2011, "Is a Nuclear War With China Possible?", [www.huntingtonnews.net/14446](http://www.huntingtonnews.net/14446))

While nuclear weapons exist, there remains a danger that they will be used. After all, for centuries national conflicts have led to wars, with nations employing their deadliest weapons. The current deterioration of U.S. relations with China might end up providing us with yet another example of this phenomenon. The gathering tension between the United States and China is clear enough. Disturbed by China’s growing economic and military strength, the U.S. government recently challenged China’s claims in the South China Sea, increased the U.S. military presence in Australia, and deepened U.S. military ties with other nations in the Pacific region. According to Secretary of State Hillary Clinton, the United States was “asserting our own position as a Pacific power.” But need this lead to nuclear war? Not necessarily. And yet, there are signs that it could. After all, both the United States and China possess large numbers of nuclear weapons. The U.S. government threatened to attack China with nuclear weapons during the Korean War and, later, during the conflict over the future of China’s offshore islands, Quemoy and Matsu. In the midst of the latter confrontation, President Dwight Eisenhower declared publicly, and chillingly, that U.S. nuclear weapons would “be used just exactly as you would use a bullet or anything else.” Of course, China didn’t have nuclear weapons then. Now that it does, perhaps the behavior of national leaders will be more temperate. But the loose nuclear threats of U.S. and Soviet government officials during the Cold War, when both nations had vast nuclear arsenals, should convince us that, even as the military ante is raised, nuclear saber-rattling persists. Some pundits argue that nuclear weapons prevent wars between nuclear-armed nations; and, admittedly, there haven’t been very many—at least not yet. But the Kargil War of 1999, between nuclear-armed India and nuclear-armed Pakistan, should convince us that such wars can occur. Indeed, in that case, the conflict almost slipped into a nuclear war. Pakistan’s foreign secretary threatened that, if the war escalated, his country felt free to use “any weapon” in its arsenal. During the conflict, Pakistan did move nuclear weapons toward its border, while India, it is claimed, readied its own nuclear missiles for an attack on Pakistan. At the least, though, don’t nuclear weapons deter a nuclear attack? Do they? Obviously, NATO leaders didn’t feel deterred, for, throughout the Cold War, NATO’s strategy was to respond to a Soviet conventional military attack on Western Europe by launching a Western nuclear attack on the nuclear-armed Soviet Union. Furthermore, if U.S. government officials really believed that nuclear deterrence worked, they would not have resorted to championing “Star Wars” and its modern variant, national missile defense. Why are these vastly expensive—and probably unworkable—military defense systems needed if other nuclear powers are deterred from attacking by U.S. nuclear might? Of course, the bottom line for those Americans convinced that nuclear weapons safeguard them from a Chinese nuclear attack might be that the U.S. nuclear arsenal is far greater than its Chinese counterpart. Today, it is estimated that the U.S. government possesses over five thousand nuclear warheads, while the Chinese government has a total inventory of roughly three hundred. Moreover, only about forty of these Chinese nuclear weapons can reach the United States. Surely the United States would “win” any nuclear war with China. But what would that “victory” entail? A nuclear attack by China would immediately slaughter at least 10 million Americans in a great storm of blast and fire, while leaving many more dying horribly of sickness and radiation poisoning. The Chinese death toll in a nuclear war would be far higher. Both nations would be reduced to smoldering, radioactive wastelands. Also, radioactive debris sent aloft by the nuclear explosions would blot out the sun and bring on a “nuclear winter” around the globe—destroying agriculture, creating worldwide famine, and generating chaos and destruction. Moreover, in another decade the extent of this catastrophe would be far worse. The Chinese government is currently expanding its nuclear arsenal, and by the year 2020 it is expected to more than double its number of nuclear weapons that can hit the United States. The U.S. government, in turn, has plans to spend hundreds of billions of dollars “modernizing” its nuclear weapons and nuclear production facilities over the next decade. To avert the enormous disaster of a U.S.-China nuclear war, there are two obvious actions that can be taken. The first is to get rid of nuclear weapons, as the nuclear powers have agreed to do but thus far have resisted doing. The second, conducted while the nuclear disarmament process is occurring, is to improve U.S.-China relations. If the American and Chinese people are interested in ensuring their survival and that of the world, they should be working to encourage these policies.

#### Goes nuclear

Glaser, Professor of Political Science and International Affairs – George Washington University, ‘11

(Charles, “Will China’s Rise Lead to War?” *Foreign Affairs* Vol. 9 Iss. 2, March/April)

THE PROSPECTS for avoiding intense military competition and war may be good, but growth in China's power may nevertheless require some changes in U.S. foreign policy that Washington will find disagreeable--particularly regarding Taiwan. Although it lost control of Taiwan during the Chinese Civil War more than six decades ago, China still considers Taiwan to be part of its homeland, and unification remains a key political goal for Beijing. China has made clear that it will use force if Taiwan declares independence, and much of China's conventional military buildup has been dedicated to increasing its ability to coerce Taiwan and reducing the United States' ability to intervene. Because China places such high value on Taiwan and because the United States and China--whatever they might formally agree to--have such different attitudes regarding the legitimacy of the status quo, the issue poses special dangers and challenges for the U.S.-Chinese relationship, placing it in a different category than Japan or South Korea.

A crisis over Taiwan could fairly easily escalate to nuclear war, because each step along the way might well seem rational to the actors involved. Current U.S. policy is designed to reduce the probability that Taiwan will declare independence and to make clear that the United States will not come to Taiwan's aid if it does. Nevertheless, the United States would find itself under pressure to protect Taiwan against any sort of attack, no matter how it originated. Given the different interests and perceptions of the various parties and the limited control Washington has over Taipei's behavior, a crisis could unfold in which the United States found itself following events rather than leading them.

Such dangers have been around for decades, but ongoing improvements in China's military capabilities may make Beijing more willing to escalate a Taiwan crisis. In addition to its improved conventional capabilities, China is modernizing its nuclear forces to increase their ability to survive and retaliate following a large-scale U.S. attack. Standard deterrence theory holds that Washington's current ability to destroy most or all of China's nuclear force enhances its bargaining position. China's nuclear modernization might remove that check on Chinese action, leading Beijing to behave more boldly in future crises than it has in past ones. A U.S. attempt to preserve its ability to defend Taiwan, meanwhile, could fuel a conventional and nuclear arms race. Enhancements to U.S. offensive targeting capabilities and strategic ballistic missile defenses might be interpreted by China as a signal of malign U.S. motives, leading to further Chinese military efforts and a general poisoning of U.S.-Chinese relations.

#### Deterrence by denial is key

Bonnie Glaser, CSIS Freeman Chair in China Studies, 4/13/12, Pivot to Asia: Prepare for Unintended Consequences, http://csis.org/files/publication/120413\_gf\_glaser.pdf

Under the current administration, the pendulum in U.S. policy toward China has swung from attempting to cooperate with China on global problems to pushing back against Chinese assertiveness and challenges to international laws and norms. Getting tougher with Beijing was necessary, but it has also created unintended consequences that the next administration, either a second Obama team or a Republican lineup, will have to contend with.

The Obama administration’s initial policy in 2009 raised fears in many Asian capitals of a G2 condominium that would make decisions over the heads of others. Those concerns were unwarranted and short lived. Beijing interpreted the U.S. approach as weakness, which, along with China’s economic success and America’s struggles, led to a year of Chinese hubris that manifested itself in a series of intimidating actions in China’s neighborhood. Subsequent entreaties by regional states to counterbalance China increased U.S. attention to the Asia-Pacific region. Now, the U.S. Asia “pivot” has prompted Chinese anxiety about U.S. containment and heightened regional worries about intensified U.S.-China strategic competition.

In the run-up to the leadership transition that will take place at China’s 18th Party Congress this fall, Beijing is inwardly focused and unlikely to act on its fears. However, 2013 could see a shift in Chinese foreign policy based on the new leadership’s judgment that it must respond to a U.S. strategy that seeks to prevent China’s reemergence as a great power.

Signs of a potential harsh reaction are already detectable. The U.S. Asia pivot has triggered an outpouring of anti-American sentiment in China that will increase pressure on China’s incoming leadership to stand up to the United States. Nationalistic voices are calling for military countermeasures to the bolstering of America’s military posture in the region and the new U.S. defense strategic guidelines. For example, an article published in China’s Global Times, a jingoistic newspaper owned by the Communist Party mouthpiece People’s Daily, called for China to strengthen its long-range strike capabilities.

Deng Xiaoping’s guideline to keep a low profile in the international arena, designed more than two decades ago to cope with uncertainty produced by the collapse of the Soviet bloc, is increasingly seen by China’s elite and public as irrelevant and even harmful to the task of defending Chinese ever-expanding “core interests.” Some voices are calling for closer alignment with Moscow and promoting the BRICS grouping (Brazil, Russia, India, and China) as a new “pole” in the international arena to strengthen the emerging powers against the West.

Xi Jinping, who will assume the helm as China’s new leader later this year, will be under pressure from many domestic constituencies to more forcefully defend Chinese interests in the international arena. Seeking to quickly consolidate his power and enhance the legitimacy of the Communist Party, Xi and his newly installed Politburo Standing Committee colleagues may be more willing than their predecessors to test drive a policy that is more confrontational.

The U.S. response to a more muscular Chinese foreign and military policy, should it appear, will have to be carefully calibrated. Ignoring greater Chinese assertiveness would fuel the belief—already emerging in China and elsewhere— that the United States is in inexorable decline. History shows that when great powers falter, China does not hesitate to seize the opportunity to advance its interests, especially in the South China Sea. As American forces withdrew from Vietnam in the mid-1970s, the Chinese grabbed the Paracel Islands from Saigon. Similarly, when the Soviet Union withdrew from Vietnam’s Cam Ranh Bay and the United States terminated its base agreement with the Philippines, China quietly occupied Mischief Reef to the dismay of Manila.

Yet a hostile and overbearing U.S. response would confirm Chinese suspicions that the United States seeks to contain its rise, which could cement the emergence of a U.S.-China Cold War. In addition, it would further alarm regional states who seek at all costs to avoid having to choose between the United States and China.

U.S. policy will need to combine firmness with subtlety. A strategy will need to be shaped that protects regional stability and reassures China’s neighbors, but also avoids greater U.S.- China strategic competition and the classic security dilemma, wherein each side believes that growing capabilities reflect hostile intent and responds by producing that reality. Sustained attention and commitment of sufficient resources to the Asia- Pacific region will be key to assuaging the doubts of regional friends and allies about U.S. staying power. The United States also will need to maintain the military capabilities necessary to deter Chinese aggression.

#### SMR’s “island” bases by providing constant reliable power

King 11

Marcus King, Ph.D., Center for Naval Analyses Project Director and Research Analyst for the Environment and Energy TeamLaVar Huntzinger, Thoi Nguyen, March 2011, Feasibility of Nuclear Power on U.S.Military Installations, www.cna.org/sites/default/files/research/Nuclear Power on Military Installations D0023932 A5.pdf

Having a reliable source of electricity is critically important for many DoD installations. Fort Meade, Maryland, which hosts the National Security Agency’s power intensive computers, is an example of where electricity is mission critical. Installations need to be more robust against interruptions caused by natural forces or intentional attack. Most installations currently rely on the commercial electricity grid and backup generators. Reliance on generators presents some limitations. A building dedicated generator only provides electricity to a specific building when there is a power outage. Typically, diesel standby generators have an availability of 85 percent when operated for more than 24 hours [38]. Most DoD installations keep less than a 5-day supply of fuel. Small nuclear power plants could contribute to electrical energy surety and survivability. Having nuclear power plants networked with the grid and other backup generating systems 5 could give DoD installations higher power availability during extended utility power outages and more days of utility-independent operation. Existing large commercial nuclear power plants have an availability of over 90 percent. When a small nuclear power plant is networked with existing backup generating systems and the grid, overall availability values could be as high as 99.6 percent [39]. Since proposed small reactors have long refueling intervals (from 4 to 30 years), if power from the commercial grid became unavailable, a small reactor could provide years of electrical power independent of the commercial grid [4]. Power assurance to DoD installations also involves three infrastructure aspects of electricity delivery: electrical power transmission, electricity distribution, and electricity control (of distribution and transmission). Electric power transmission is the bulk transfer of electrical energy from generating plants to substations located near population centers. Electricity distribution networks carry electricity from the substations to consumers. Electricity control is the management of switches and connections to control the flow of electricity through transmission and distribution networks. Typically, transmission lines transfer electricity at high voltages over long distances to minimize loss; electricity distribution systems carry medium voltages. For electrical power transmission, very little additional infrastructure is required to incorporate small nuclear power plants because they would be located on or near the DoD installation being serviced. However, redundancy in transmission lines would make the overall network more robust. Electricity control capabilities, such as self-healing 6 and optimization of assets to increase operational efficiency, could improve overall power availability; however, they are not necessary for the integration of small nuclear power plants. Key components for improving electricity control include advanced electricity meters and electricity meter data management. These tools are needed in order to establish islanding, a condition in which a portion of the utility system, which contains both load and generation, is isolated from the remainder of the utility system and continues to operate. Since the power generation capacities of small nuclear power plants are larger than required for most DoD bases, islanding could extend to adjacent communities if sufficient technical upgrades were performed to systems outside of the installation. This contributes to DoD missions because civilians and service members working on the installation often live with their families in adjacent communities. The power would ensure that critical services such as emergency response, waste water treatment, and hospitals could be maintained.

#### DoD bypasses regulatory hurdles and safety hazards

Loudermilk 11

Micah J. Loudermilk, Research Associate for the Energy & Environmental Security Policy program with the Institute for National Strategic Studies at National Defense University, 5/31/11, Small Nuclear Reactors and US Energy Security: Concepts, Capabilities, and Costs, [www.ensec.org/index.php?option=com\_content&view=article&id=314:small-nuclear-reactors-and-us-energy-security-concepts-capabilities-and-costs&catid=116:content0411&Itemid=375](http://www.ensec.org/index.php?option=com_content&view=article&id=314:small-nuclear-reactors-and-us-energy-security-concepts-capabilities-and-costs&catid=116:content0411&Itemid=375)

Path forward: Department of Defense as first-mover Problematically, despite the immense energy security benefits that would accompany the wide-scale adoption of small modular reactors in the US, with a difficult regulatory environment, anti-nuclear lobbying groups, skeptical public opinion, and of course the recent Fukushima accident, the nuclear industry faces a tough road in the battle for new reactors. While President Obama and Energy Secretary Chu have demonstrated support for nuclear advancement on the SMR front, progress will prove difficult. However, a potential route exists by which small reactors may more easily become a reality: the US military. The US Navy has successfully managed, without accident, over 500 small reactors on-board its ships and submarines throughout 50 years of nuclear operations. At the same time, serious concern exists, highlighted by the Defense Science Board Task Force in 2008, that US military bases are tied to, and almost entirely dependent upon, the fragile civilian electrical grid for 99% of its electricity consumption. To protect military bases’ power supplies and the nation’s military assets housed on these domestic installations, the Board recommended a strategy of “islanding” the energy supplies for military installations, thus ensuring their security and availability in a crisis or conflict that disrupts the nation’s grid or energy supplies. DOD has sought to achieve this through decreased energy consumption and renewable technologies placed on bases, but these endeavors will not go nearly far enough in achieving the department’s objectives. However, by placing small reactors on domestic US military bases, DOD could solve its own energy security quandary—providing assured supplies of secure and constant energy both to bases and possibly the surrounding civilian areas as well. Concerns over reactor safety and security are alleviated by the security already present on installations and the military’s long history of successfully operating nuclear reactors without incident. Unlike reactors on-board ships, small reactors housed on domestic bases would undoubtedly be subject to Nuclear Regulatory Commission (NRC) regulation and certification, however, with strong military backing, adoption of the reactors may prove significantly easier than would otherwise be possible. Additionally, as the reactors become integrated on military facilities, general fears over the use and expansion of nuclear power will ease, creating inroads for widespread adoption of the technology at the private utility level. Finally, and perhaps most importantly, action by DOD as a “first mover” on small reactor technology will preserve America’s badly struggling and nearly extinct nuclear energy industry. The US possesses a wealth of knowledge and technological expertise on SMRs and has an opportunity to take a leading role in its adoption worldwide. With the domestic nuclear industry largely dormant for three decades, the US is at risk of losing its position as the global leader in the international nuclear energy market. If the current trend continues, the US will reach a point in the future where it is forced to import nuclear technologies from other countries—a point echoed by Secretary Chu in his push for nuclear power expansion. Action by the military to install reactors on domestic bases will guarantee the short-term survival of the US nuclear industry and will work to solidify long-term support for nuclear energy. Conclusions In the end, small modular reactors present a viable path forward for both the expansion of nuclear power in the US and also for enhanced US energy security. Offering highly safe, secure, and proliferation-resistant designs, SMRs have the potential to bring carbon-free baseload distributed power across the United States. Small reactors measure up with, and even exceed, large nuclear reactors on questions of safety and possibly on the financial (cost) front as well. SMRs carry many of the benefits of both large-scale nuclear energy generation and renewable energy technologies. At the same time, they can reduce US dependence on fossil fuels for electricity production—moving the US ahead on carbon dioxide and GHG reduction goals and setting a global example. While domestic hurdles within the nuclear regulatory environment domestically have proven nearly impossible to overcome since Three Mile Island, military adoption of small reactors on its bases would provide energy security for the nation’s military forces and may create the inroads necessary to advance the technology broadly and eventually lead to their wide-scale adoption.

# new adv

#### Space crucial to US hegemony---falling behind impairs all US military operations

Lambakis, 7

(Sr. Analyst-National Institute for Public Policy & Editor-Comparative Strategy, PhD-Catholic University, Missile Defense From Space, 2/1, http://www.hoover.org/publications/policy-review/article/6124)

Modern-day U.S. defense strategy, of necessity, is global in scope, and it will likely retain this character for decades. Fundamental to maintaining this global awareness and presence are satellite operations. National economic and commercial interrelationships thrive on the flow of invisible ones and zeros through space channels, so that timely, agile intercontinental trade is now taken for granted. U.S. and coalition forces routinely leverage earth-circling platforms to enhance military capabilities: the Global Positioning System for improved navigation and precision timing, reconnaissance and early warning sensors, and high-bandwidth communications. Space, moreover, is an open arena, a global commons increasingly used by many countries for military purposes. The proliferation of space technologies offers foreign governments and nonstate entities unparalleled opportunities **to enhance diplomatic and military influence over the U.S**. and strike with strategic effect. Potential enemies of the United States today have improved “vision” over the U.S. homeland and battlefield activities, a better sense of direction and geographic position, and an improved ability to mobilize forces and coordinate activities. With battle space now reaching up to at least 22,000 miles above the Earth — the orbital altitudes for early warning and communications satellites — protecting ourselves from future attacks will **depend mightily on space power**. But the country lacks a unified, coherent approach to expanding the use of space to improve combat effectiveness, a problem that is compounded by a politically charged debate over weapons in space.1 Critics contend that weapons in space would destabilize existing security relationships, precipitate an arms race, undermine U.S. foreign policy, and seed anti-American coalitions. Not only are such criticisms based on questionable assumptions,2 but they also have not persuaded the country to forgo the advantages of space weapons. The most one could say at this stage is that the American people are indifferent, noncommittal, and confused.

#### Space Laser solves all wars and locks-in hegemony

Lambakis, 7

(Sr. Analyst-National Institute for Public Policy & Editor-Comparative Strategy, PhD-Catholic University, Missile Defense From Space, 2/1, http://www.hoover.org/publications/policy-review/article/6124)

The policy benefits of a space-based missile defense layer are straightforward. A more effective missile defense system that fully leverages space would provide a **true on-call global defensive capability, and this could lead to increased stability in the world**. Defenses **deter attacks** by reducing confidence in the success of any attack. The more effective the missile defense system is, the greater will be its deterrence value, and the less likely will we be to have to use it at all. At some point, when the system is seen by other governments as highly effective, they could recognize a diminishing marginal rate of return in their own ballistic missile investments. As more allies invest in missile defense, U.S. space-basing activities could build on current missile defense cooperative activities and **open up new avenues for international collaboration**, both to develop elements of the space-based layer and to participate in operations. Moreover, because no state can have sovereignty over the space above its territory, we could operate up there free of political constraints. The need for negotiating basing rights to locate sensors or interceptor fields would become less pressing. Improved system performance would give the U.S. leadership a better array of options. In the face of attempted blackmail, for example, the president and his advisors would have confidence in the nation’s capabilities to defeat a missile, which would make it **possible to avoid more destabilizing moves, such as offensive preventive attacks on enemy territory**. It is equally true that strong defenses would support necessary offensive action. Effective defenses can buy time to understand the strategic consequences and overall impact of military action. Our choices are fundamental to making moral judgments. The moral issues surrounding a national security crisis are tied to considerations of operational effectiveness. Are we doing our best to provide protection against some of the worst weapons imaginable? What would the consequences of not acting be, or of not being able to act because of a blackmail threat? What would be the result if Washington were unable to respond to increased terrorist activity worldwide or an upswing in the global weapons of mass destruction trade? A space-based layer **would reinforce American strength**, which in turn would allow the U.S. to better defend its interests and pursue its foreign policy goals. A powerful and influential United States is good for **world peace, stability, and enforcing the rule of law internationally.**

Space laser key force-multiplier

Kleinburg 11

(Intl Affairs Prof-UNC Wilmington, “A Global Missile Defense 'networK': Terrestrial High-Energy Lasers and Aerospace Mirrors Part 1 of 2,” http://www.faqs.org/periodicals/201103/2305177921.html)

Advantages of space-based weapons for missile-defense. Space-based weapons, for missile defense, have many critical advantages over terrestrial-based systems. The first and foremost of these is the old real-estate adage, 'location, location, location.' Objects in orbit circle the globe in as little as 90 minutes. According to James G. Lee, with the U.S. Air Force Air University, speeds are typically as much as 4.5 miles per second in Low Earth Orbit (LEO), granting them as much initial velocity (more, withbooster motors) as is technologically possible, while still being located near the Earth. From LEO, they have as little distance as possible to reach a boosting BM, while still being in orbit proper. In fact, Lowell Wood described in "Ballistic Missile Defense in an Ideal World," they would most likely follow a downward path from their orbital altitude to effect an interception of a boost-phase missile, giving them maximum advantage in an intercept flight. Inali, Space-Based Ballistic Missile Defense weapons have an immense advantage of speed over their ballistic missile adversaries, since they are already going faster than their targets ever will, i.e., at orbital velocity, and will add even more speed (i.e., more mi/sec.) in the process of boosting and descending to intercept their targets. Second, under international law, space-based systems are legally entitled to overfly any place on Earth at any time they do so. In addition, Lee showed, objects in orbit overfly the same points and areas on Earth many times a day, every day, for spans of years or more. Even if international law prohibited space overflights, the complexity and cost of stopping objects in space would limit the possibilities of doing so to a very few states (at least at present.) Third, objects in space have the advantage of height, always a critical advantage in warfighting, and one that gives the added advantages of line of sight (range), descent, speed, and range, especially with respect to a boosting ballistic missile target as it struggles up out of its ocean of air, up out of Earth's gravity well, from far below. Space-based objects also have the advantage of persistence, since they lose speed and altitude only very marginally, enabling them to remain in orbit for years. Such devices are also necessarily automated. Thus, all of these aspects enable space-based missile defenses to remain active, in service, and always 'on duty' for several years straight. Fourth, and arguably **the greatest single advantage of SB-BMD weapons, is their inherent force-multiplier effect**. As Gregory Canavan observed in his article, "Estimates of Cost and Performance for Boost-Phase Intercept," any single space-based weapon can replace hundreds or even thousands of ground-based weapons to cover the same territory. This is because an object in space will sweep over the entire globe, covering a swath of ground, and air, for thousands miles on either side of its flight-path. This same effect holds true for space-based weapons when compared sea-based forces, though the latter's greater mobility and of movement reduces the advantages somewhat. However, like land-based counterparts, sea-based weapons must also climb out the earth's gravity -well and atmosphere, with zero initial and altitude, the same constrictions that apply to all surface-launched systems. Finally, SB-BMD weapons would be placed in orbiting 'bands' of interceptors in approximately the same orbits, providing both continuous coverage of target regions, and affording multiple opportunities to intercept any given ballistic missile throughout its flight, although this depends upon the interceptor 's boost capabilities. Further interception opportunities are available in the missile's midcourse and even terminal phases as much as the boost-phase, according to Pfaltzgraff's and Van Cleave's 2009 report, "Independent Working Group on Missile Defense, the Space Relationship, and the Twenty -First Century."

#### Nuclear war

Barnett, Professor, Warfare Analysis and Research Dept – U.S. Naval War College, 3/7/’11

(Thomas, “The New Rules: Leadership Fatigue Puts U.S., and Globalization, at Crossroads,” <http://www.worldpoliticsreview.com/articles/8099/the-new-rules-leadership-fatigue-puts-u-s-and-globalization-at-crossroads>)

Events in Libya are a further reminder for Americans that we stand at a crossroads in our continuing evolution as the world's sole full-service superpower. Unfortunately, we are increasingly seeking change without cost, and shirking from risk because we are tired of the responsibility. We don't know who we are anymore, and our president is a big part of that problem. Instead of leading us, he explains to us. Barack Obama would have us believe that he is practicing strategic patience. But many experts and ordinary citizens alike have concluded that he is actually beset by strategic incoherence -- in effect, a man overmatched by the job.  It is worth first examining the larger picture: We live in a time of arguably the greatest structural change in the global order yet endured, with this historical moment's most amazing feature being its relative and absolute lack of mass violence. That is something to consider when Americans contemplate military intervention in Libya, because if we do take the step to prevent larger-scale killing by engaging in some killing of our own, we will not be adding to some fantastically imagined global death count stemming from the ongoing "megalomania" and "evil" of American "empire." We'll be engaging in the same sort of system-administering activity that has marked our stunningly successful stewardship of global order since World War II.  Let me be more blunt: As the guardian of globalization, the U.S. military has been the greatest force for peace the world has ever known. Had America been removed from the global dynamics that governed the 20th century, the mass murder never would have ended. Indeed, it's entirely conceivable there would now be no identifiable human civilization left, once nuclear weapons entered the killing equation.  But the world did not keep sliding down that path of perpetual war. Instead, America stepped up and changed everything by ushering in our now-perpetual great-power peace. We introduced the international liberal trade order known as globalization and played loyal Leviathan over its spread. What resulted was the collapse of empires, an explosion of democracy, the persistent spread of human rights, the liberation of women, the doubling of life expectancy, a roughly 10-fold increase in adjusted global GDP and a profound and persistent reduction in battle deaths from state-based conflicts.

#### States will inevitably compete for relative status – only primacy can prevent conflict

**Wohlforth 9**, Professor of government at Dartmouth, (William, “Unipolarity, Status Competition, and Great Power War” World Politics, 61:1, January, Project Muse)

Second, I question the dominant view that status quo evaluations are relatively independent of the distribution of capabilities. If the status of states depends in some measure on their relative capabilities, and if states derive utility from status, then different distributions of capabilities may affect levels of satisfaction, just as different income distributions may affect levels of status competition in domestic settings. 6 Building on research in psychology and sociology, I argue that even capabilities distributions among major powers foster ambiguous status hierarchies, which generate more dissatisfaction and clashes over the status quo. And the more stratified the distribution of capabilities, the less likely such status competition is.

Unipolarity thus generates far fewer incentives than either bipolarity or multipolarity for direct great power positional competition over status. Elites in the other major powers continue to prefer higher status, but in a unipolar system they face comparatively weak incentives to translate that preference into costly action. And the absence of such incentives matters because social status is a positional good—something whose value depends on how much one has in relation to others.7 “If everyone has high status,” Randall Schweller notes, “no one does.”8 While one actor might increase its status, all cannot simultaneously do so. High status is thus inherently scarce, and competitions for status tend to be zero sum.9

I begin by describing the puzzles facing predominant theories that status competition might solve. Building on recent research on social identity and status seeking, I then show that under certain conditions the ways decision makers identify with the states they represent may prompt them to frame issues as positional disputes over status in a social hierarchy. I develop hypotheses that tailor this scholarship to the domain of great power politics, showing how the probability of status competition is likely to be linked to polarity. The rest of the article investigates whether there is sufficient evidence for these hypotheses to warrant further refinement and testing. I pursue this in three ways: by showing that the theory advanced here is consistent with what we know about large-scale patterns of great power conflict through history; by [End Page 30] demonstrating that the causal mechanisms it identifies did drive relatively secure major powers to military conflict in the past (and therefore that they might do so again if the world were bipolar or multipolar); and by showing that observable evidence concerning the major powers’ identity politics and grand strategies under unipolarity are consistent with the theory’s expectations.

Puzzles of Power and War

Recent research on the connection between the distribution of capabilities and war has concentrated on a hypothesis long central to systemic theories of power transition or hegemonic stability: that major war arises out of a power shift in favor of a rising state dissatisfied with a status quo defended by a declining satisfied state.10 Though they have garnered substantial empirical support, these theories have yet to solve two intertwined empirical and theoretical puzzles—each of which might be explained by positional concerns for status.

First, if the material costs and benefits of a given status quo are what matters, why would a state be dissatisfied with the very status quo that had abetted its rise? The rise of China today naturally prompts this question, but it is hardly a novel situation. Most of the best known and most consequential power transitions in history featured rising challengers that were prospering mightily under the status quo. In case after case, historians argue that these revisionist powers sought recognition and standing rather than specific alterations to the existing rules and practices that constituted the order of the day.

In each paradigmatic case of hegemonic war, the claims of the rising power are hard to reduce to instrumental adjustment of the status quo. In R. Ned Lebow’s reading, for example, Thucydides’ account tells us that the rise of Athens posed unacceptable threats not to the security or welfare of Sparta but rather to its identity as leader of the Greek world, which was an important cause of the Spartan assembly’s vote for war.11 The issues that inspired Louis XIV’s and Napoleon’s dissatisfaction with the status quo were many and varied, but most accounts accord [End Page 31] independent importance to the drive for a position of unparalleled primacy. In these and other hegemonic struggles among leading states in post-Westphalian Europe, the rising challenger’s dissatisfaction is often difficult to connect to the material costs and benefits of the status quo, and much contemporary evidence revolves around issues of recognition and status.12

Wilhemine Germany is a fateful case in point. As Paul Kennedy has argued, underlying material trends as of 1914 were set to propel Germany’s continued rise indefinitely, so long as Europe remained at peace.13 Yet Germany chafed under the very status quo that abetted this rise and its elite focused resentment on its chief trading partner—the great power that presented the least plausible threat to its security: Great Britain. At fantastic cost, it built a battleship fleet with no plausible strategic purpose other than to stake a claim on global power status.14 Recent historical studies present strong evidence that, far from fearing attacks from Russia and France, German leaders sought to provoke them, knowing that this would lead to a long, expensive, and sanguinary war that Britain was certain to join.15 And of all the motivations swirling round these momentous decisions, no serious historical account fails to register German leaders’ oft-expressed yearning for “a place in the sun.”

The second puzzle is bargaining failure. Hegemonic theories tend to model war as a conflict over the status quo without specifying precisely what the status quo is and what flows of benefits it provides to states.16 Scholars generally follow Robert Gilpin in positing that the underlying issue concerns a “desire to redraft the rules by which relations among nations work,” “the nature and governance of the system,” and “the distribution of territory among the states in the system.”17 If these are the [End Page 32] issues at stake, then systemic theories of hegemonic war and power transition confront the puzzle brought to the fore in a seminal article by James Fearon: what prevents states from striking a bargain that avoids the costs of war? 18 Why can’t states renegotiate the international order as underlying capabilities distributions shift their relative bargaining power?

Fearon proposed that one answer consistent with strict rational choice assumptions is that such bargains are infeasible when the issue at stake is indivisible and cannot readily be portioned out to each side. Most aspects of a given international order are readily divisible, however, and, as Fearon stressed, “both the intrinsic complexity and richness of most matters over which states negotiate and the availability of linkages and side-payments suggest that intermediate bargains typically will exist.”19 Thus, most scholars have assumed that the indivisibility problem is trivial, focusing on two other rational choice explanations for bargaining failure: uncertainty and the commitment problem.20 In the view of many scholars, it is these problems, rather than indivisibility, that likely explain leaders’ inability to avail themselves of such intermediate bargains.

Yet recent research inspired by constructivism shows how issues that are physically divisible can become socially indivisible, depending on how they relate to the identities of decision makers.21 Once issues surrounding the status quo are framed in positional terms as bearing on the disputants’ relative standing, then, to the extent that they value their standing itself, they may be unwilling to pursue intermediate bargaining solutions. Once linked to status, easily divisible issues that theoretically provide opportunities for linkages and side payments of various sorts may themselves be seen as indivisible and thus unavailable as avenues for possible intermediate bargains.

The historical record surrounding major wars is rich with evidence suggesting that positional concerns over status frustrate bargaining: expensive, protracted conflict over what appear to be minor issues; a propensity on the part of decision makers to frame issues in terms of relative rank even when doing so makes bargaining harder; decision-makers’ [End Page 33] inability to accept feasible divisions of the matter in dispute even when failing to do so imposes high costs; demands on the part of states for observable evidence to confirm their estimate of an improved position in the hierarchy; the inability of private bargains to resolve issues; a frequently observed compulsion for the public attainment of concessions from a higher ranked state; and stubborn resistance on the part of states to which such demands are addressed even when acquiescence entails limited material cost.

The literature on bargaining failure in the context of power shifts remains inconclusive, and it is premature to take any empirical pattern as necessarily probative. Indeed, Robert Powell has recently proposed that indivisibility is not a rationalistic explanation for war after all: fully rational leaders with perfect information should prefer to settle a dispute over an indivisible issue by resorting to a lottery rather than a war certain to destroy some of the goods in dispute. What might prevent such bargaining solutions is not indivisibility itself, he argues, but rather the parties’ inability to commit to abide by any agreement in the future if they expect their relative capabilities to continue to shift.22 This is the credible commitment problem to which many theorists are now turning their attention. But how it relates to the information problem that until recently dominated the formal literature remains to be seen.23

The larger point is that positional concerns for status may help account for the puzzle of bargaining failure. In the rational choice bargaining literature, war is puzzling because it destroys some of the benefits or flows of benefits in dispute between the bargainers, who would be better off dividing the spoils without war. Yet what happens to these models if what matters for states is less the flows of material benefits themselves than their implications for relative status? The salience of this question depends on the relative importance of positional concern for status among states.

Do Great Powers Care about Status?

Mainstream theories generally posit that states come to blows over an international status quo only when it has implications for their security or material well-being. The guiding assumption is that a state’s satisfaction [End Page 34] with its place in the existing order is a function of the material costs and benefits implied by that status.24 By that assumption, once a state’s status in an international order ceases to affect its material wellbeing, its relative standing will have no bearing on decisions for war or peace. But the assumption is undermined by cumulative research in disciplines ranging from neuroscience and evolutionary biology to economics, anthropology, sociology, and psychology that human beings are powerfully motivated by the desire for favorable social status comparisons. This research suggests that the preference for status is a basic disposition rather than merely a strategy for attaining other goals.25 People often seek tangibles not so much because of the welfare or security they bring but because of the social status they confer. Under certain conditions, the search for status will cause people to behave in ways that directly contradict their material interest in security and/or prosperity.

#### Current US missile defense ineffective--- space laser is vital to prevent an ICBM attack on the US that leads to extinction

Lambakis, 7

(Sr. Analyst-National Institute for Public Policy & Editor-Comparative Strategy, PhD-Catholic University, Missile Defense From Space, 2/1, http://www.hoover.org/publications/policy-review/article/6124)

The ballistic missile threat to the United States, its deployed forces, and allies and friends has been well defined.6 This is a threat we downplay at our peril. Nations such as North Korea and Iran — which also have significant programs to develop nuclear, biological, and chemical weapons — as well as nonstate groups can pose significant, even catastrophic, dangers to the U.S. homeland, our troops, and our allies. Russia and China, two militarily powerful nations in transition, have advanced ballistic missile modernization and countermeasure programs. Indeed, despite the reality that trade relations with China continue to expand, its rapid military modernization represents a potentially serious threat. Whether these nations become deadly adversaries hinges on nothing more than a political change of heart in their respective capitals. The intelligence community’s ability to provide timely and accurate estimates of ballistic missile threats is, by many measures, poor. Our leaders have been consistently surprised by foreign ballistic missile developments. Shortened development timelines and the ability to move or import operational missiles, buy components, and hire missile experts from abroad mean the United States may have little or no warning before it is threatened or attacked. There is no escaping the uncertainty we face. And the stakes couldn’t be higher. A ballistic missile delivering a nuclear payload to an American city would be truly devastating. For comparison, the Insurance Information Institute estimates total economic loss so far from Hurricane Katrina at more than $100 billion. By some calculations, it is going to take New Orleans 25 years to recover fully, and the cost of rebuilding the city is predicted to be as high as $200 billion. The direct cost to the New York City economy following the September 11, 2001, terrorist attacks was between $80 billion and $100 billion. These figures do not include indirect costs or the incalculable human losses. Now just imagine the costs imposed by a ballistic missile nuclear strike against a U.S. city. The economic toll from a single nuclear attack against a major city, which would involve extensive decontamination activities and impact the national economy, could rise above $4 trillion.7 The economy could also be devastated by the electromagnetic pulse generated by a high-altitude nuclear explosion. The resulting electromagnetic shock would fry transformers within regional electrical power grids.8 The interdependent telecommunications (including computers), transportation, and banking and financial infrastructures that people and businesses rely on would be significantly damaged. Such an event would leave us, in some cases, with nineteenth-century technologies. **This situation could jeopardize the very viability of society and the survival of the nation.** Moreover, the paralysis leaders would experience would leave the country and its allies exposed to highly lethal twenty-first century threats. The blackmail possibilities of these weapons are as mind-numbing as they are terrifying. A nuclear attack against a major city could devastate our economy, with the toll rising above $4 trillion. After more than 60 years of advances in ballistic missile technologies, we have only just begun to address our vulnerability to them. Missile defense is a policy and budgetary reality today, and it enjoys strong bipartisan support. Current U.S. efforts to dissuade other countries from investing in ballistic missiles, to assure U.S. allies, and to deter aggression put missile defense in a place of prominence. Bush Administration policy is to evolve the fielded system incrementally to defend against these threats. The system is intended to adapt to new threats as they emerge and integrate advanced missile defense technologies as they are introduced. The fielded system today consists of space-based detection sensors, ground-based and seaborne early warning and tracking sensors, ground-based interceptors in Alaska and California for long-range defense, transportable ground-based Patriot Advanced Capability–3 units, and sea-based interceptors to engage short- and medium-range ballistic missiles. There are also several development programs to field new ground- and sea-based and airborne weapons to give the layered defense system new capabilities for engaging all ranges of ballistic missiles. Multiple defensive layers, with system elements working together synergistically to enhance the capability of the whole, are central to the approach adopted by U.S. defense leaders. No one layer or interceptor design can fulfill this global mission on its own. Several capabilities for intercepting a ballistic missile or its payload just after launch, or as it flies through its midcourse phase in space, or as it reenters Earth’s atmosphere on a terminal trajectory will enhance overall system effectiveness by providing a defense in depth. Such a defense not only can enable several shot opportunities against an in-flight missile, but also can address the problem of missile defense countermeasures, which generally work in only one phase of flight. The current U.S. approach, in other words, is the right one. LIMITS OF THE CURRENT SYSTEM Over the long term, will the currently configured and planned terrestrial-based missile defense system be sufficient to deal with increasingly sophisticated countermeasures and shifting threats? The answer, I believe, is no. The system being deployed today is fixed firmly to Earth. Whether they are sea-based or land-based weapons, or even the boost-engagement Airborne Laser, we are essentially talking about terrestrial platforms for basing weapons. As we move into the future, there are plans to make those platforms, the sensors and interceptors, more mobile. Why? Because greater mobility can provide greater flexibility for dealing with unpredicted threats. Mobility also allows a commander to concentrate his forces or disperse them as the requirements of the battlefield demand. It matters where we locate sensors and interceptors. It is important to put sensors close to the threat, because they will be in position to provide critical cueing and tracking data early in a ballistic missile’s flight. These data can help enlarge the engagement battle space. To perform boost-phase intercept from the ground or sea, the weapons platforms must be very near the target launch site. These terrestrial boost-phase weapons can defend many targets around the globe by covering a single launch site. The disadvantage of such basing, a disadvantage that is mitigated somewhat with a mobile platform like the Airborne Laser, is that the threat launch site or region must be predicted. Terrestrial-based weapons that engage in space, in the middle or midcourse of a missile’s or warhead’s flight, offer perhaps the greatest flexibility in terms of addressing possible flight azimuths, trajectories, and launch points. While ground-based midcourse interceptors may have to be oriented to large threat regions, they can defend against multiple launch points. Conversely, ground interceptors that are near the target can defend only a small area, but they can potentially protect that point from launches anywhere in the world. Yet it is simply unaffordable to do a point defense for every place you want to defend in the United States, every place that U.S. forces go, or everywhere that our allies are. The ability to do area defense — to defend against multiple launch points as opposed to doing point defense of a very limited area — is fundamental to successful missile defense. Political, strategic, and technological uncertainties could change the missile defense scenario by causing a shift in the threat from one region to another. Given that it takes years to field, test, and make operational new fixed interceptor and sensor sites, a shift in the threat could leave the nation vulnerable. Because many of the interceptors and sensors in the current system are fixed to geographic points, we are limited in our ability to defend the homeland, for example, against missiles launched from surprise locations such as a ship off our shoreline. We also might face an adversary tomorrow that deploys tens or even hundreds of ballistic missiles or one that has more sophisticated countermeasure and reentry technologies. Those, too, would be expected to stress the current system, which is designed at the moment to deal with more limited threats. Planned transportable land-based and mobile sea-based and airborne systems also suffer limitations. The need to base sensors and interceptors forward, closer to threat launch sites, in order to enlarge the engagement battle space makes our security dependent on political decisions by foreign governments. Projected boost defense systems, which may be deployed to the periphery or littoral of an adversary, would have very limited or no utility against a ballistic missile launched from several hundred miles inside a threat country’s border. The inability to engage a missile in boost means we would be left with only midcourse or terminal intercept possibilities, if those are available, and this removes a layer from the effectiveness calculations. IT’S ALL ABOUT POSITION Today we base missile-defense weapons on Earth, yet most engagements actually take place high above the Earth’s surface, in space — unless, of course, those engagements occur very early in boost or late in terminal. Putting interceptors in space to engage ballistic missiles could offer efficiencies that go a long way towards improving national defense, protecting more areas around the world, and reacting more effectively to threat surprises. The Exoatmospheric Kill Vehicle (ekv), deployed on top of a long-range ground-based interceptor in Alaska and California, is really a euphemism for “space weapon.” Space is the only environment in which the ekv will operate. In order to perform the missile defense mission, it must be boosted into space where it is “based” for a short time and operates semi-autonomously to put itself onto a collision path with a hostile warhead. In other words, the ekv is a “space weapon” that just happens to spend most of its time on the ground. The Standard Missile–3 interceptor, while it is carried on Aegis ballistic missile defense ships, also executes the intercept endgame in space against short- to medium-range ballistic missiles using a sensor-propulsion package designed to collide with the target. Thus, despite the fact that space is the recognized battleground in many missile defense engagements, we are deploying “space weapons” that are restricted to terrestrial launching just prior to operation. They must fight a space war from Earth. So, in a sense, these terrestrial-based interceptors are out of position before the battle even begins. At the very least, they are not in the most advantageous position to accomplish the mission for which they were designed. Before we can even begin the launch sequence, battle managers must wait for the attacker to make his move. The attacker has a head start and the ability to pre-position before the defender can get to the point where he must engage, especially if we are talking about engagement in the midcourse phase of flight. These engagements take place over a matter of minutes, of course, so any time wasted getting into position could lead to a failed intercept and possibly devastation for a city. By not basing interceptors in space, by not pre-positioning assets in the environment where we know intercepts will take place, the defense is surrendering a fundamental positional advantage. On this point, there is relevance in Carl von Clausewitz’s observation that a “benefit [of defensive action], one that arises solely from the nature of war, derives from the advantage of position, which tends to favor the defense.”9 To give up this advantage is detrimental to the cause. While space assets generally follow predictable orbital paths, they do provide a unique form of mobility — they can be present and persistent over many places on the globe. Indeed, in 2007, the Missile Defense Agency will begin demonstrations with two satellites hosting sensors designed to provide very fine surveillance and tracking data on in-flight ballistic missiles and payloads. A constellation of these satellites would become the sensor backbone of a global missile defense capability and would make possible the global mission endorsed by the Bush administration: the protection of the United States, its deployed forces, and allies and friends. Similarly, a space-based interceptor layer would enable a global on-call missile defense capability and a timely response to rapidly evolving threats, even threats emanating from unpredicted locations with very different azimuths from those we plan to be able to defeat today.10 A space-defense capability also would allow the country to engage longer-range threats originating from deep within the interior of a threat country. It is also known that enemies of the United States can put a nuclear weapon over U.S. territory using a ballistic missile. The detonation of this weapon at a high altitude could unleash an electromagnetic pulse that would wipe out satellite and airborne navigation, intelligence, and communications systems and impede any U.S. military response to the aggression. Such a pulse of energy would disable or destroy the unprotected technological infrastructure of a region or the nation. According to the emp Commission, “a regional or national recovery would be long and difficult and would seriously degrade the safety and overall viability of our nation. . . . [A]t some point the degradation of infrastructure could have irreversible effects on the country’s ability to support its population.” Space-based interceptors may be the only effective way to counter this threat and mitigate the effects of an electromagnetic pulse resulting from the intercept. Engaging the missile close to its launch point would release the resulting explosion of gamma rays closer to the attacker’s territory. Relying on an intercept in space, in the midcourse of a missile’s flight, risks damaging unprotected satellites (i.e., just about all commercial and civilian satellites), regardless of who owns them. Because the missile defense system is “layered” and will have multiple elements working together synergistically, sharing information, sharing existing sensors, communicating as a single system worldwide, even a small constellation of space-based interceptor platforms would allow the entire system to work more efficiently. The massive constellations projected back in the heady days of the Strategic Defense Initiative, in other words, do not seem to be necessary, especially when the targeted adversaries have very limited ballistic missile inventories. By attacking even just a portion of the threat missiles in boost and midcourse, the space layer has the effect of thinning out the number of attacking missiles so that the other elements of the system, which are based on the ground or at sea (midcourse and terminal systems), can be more effective.

#### Status quo ensures Korean ICBM development and aggression—only better missile defense solves

Cronin, 12

(Senior Director of the Asia-Pacific Security Program, Center for a New American Security, North Korea after Kim Jong-il: Still Dangerous and Erratic,” Congressional Testimony, 4/18, http://www.cnas.org/files/documents/publications/CNAS%20Testimony\_NorthKorea\_Cronin%20041812.pdf)

Madam Chairman and Members of the Committee, thank you for inviting me to join these timely proceedings. Having analyzed North Korea over three decades, it is my judgment that **the regime in Pyongyang remains armed, dangerous and prone to miscalculation**. Last week Kim Jong-eun recklessly pursued a long-range missile launch in contravention of United Nations Security Council resolutions and a voluntary agreement with the United States. He used his maiden public address to announce the primacy of military force, and he ominously exhorted North Koreans to prepare for a “final victory.” He boasted of unprecedented military achievements, suggesting potential progress in fabricating a nuclear ICBM while parading a road-mobile missile. Kim Jong-eun’s determination to show seamless continuity during this rare leadership transition reminds us that North Korea **may resort to lethal force without warning**, as it did twice in 2010 and on numerous occasions in previous years. Meanwhile, the North’s people suffer from economic hardship and brutal political oppression. In all these and other ways, North Korea is indeed still dangerous. It is also erratic in the sense that the moment we publicly predict the next move of “Kim 3.0” he may seek to dash our expectations yet again. 1 My main argument is that the United States lacks an effective, long-term strategy for achieving peace on the Korean Peninsula. Despite a robust alliance with the Republic of Korea, we are gradually losing leverage over an opaque regime in North Korea **determined to acquire nuclear weapons designed to hit American soil**. We **lack direct contact with North Korea’s collective leadership** and rely far too much on secondhand information. A sober assessment of our North Korea policy assumptions should produce both a new strategic approach and strengthen America’s defensive posture in Northeast Asia. Let me explain briefly why our present approach is not working and what we should do about it. Last week’s failed missile launch demonstrated that we are counting on North Korean technical incompetence to ensure a large measure of our security. Thus, it would be a mistake to assume that we dodged a bullet when North Korea’s Unha-3 missile exploded less than two minutes after launch. In reality, this launch portends **an exponential advance in North Korean military might.** While the liquid fueled Unha-3 may be operationally impractical as an ICBM (at least compared to modern, solid-fueled rockets), it does provide an important test of the staging required for a long-range missile designed to carry a nuclear warhead. North Korea’s missile provocation carries costs to the United States and its allies which transcend merely damaging American credibility. It poses **real military threats that must be addressed through** a comprehensive strategy that also includes **better defensive military means**. Cutting food aid and pursuing UN Security Council resolutions are insufficient, even feeble, responses, and they do nothing to check North Korea’s unrelenting ambition to build a long-range nuclear weapons program.

#### Unchecked missile prolif causes extinction—only space-based BMD solves

Cooper, 11

(Frmr. DOD Deputy Exec and Chairman-High Frontier (Defense Tech Think-Tank), “Increasing the Military Uses of Space,” http://www.ndu.edu/press/lib/pdf/spacepower/spacepower.pdf)

A limited strike capability from space would allow for the engagement of the highest threat and the most fleeting targets wherever they presented themselves on the globe, regardless of the intention of the perpetrator. The case of a ballistic missile carrying nuclear warheads is exemplary. Two decades ago, the most dangerous threat facing America (and the world) was a massive exchange of nuclear warheads that could destroy all life on the planet. Since a perfect defense was not achievable, negotiators agreed to no defense at all, on the assumption that reasonable leaders would restrain themselves from global catastrophe. Today, a massive exchange is less likely than at any period of the Cold War, in part because of significant reductions in the primary nations' nuclear arsenals. The most likely and most dangerous threat comes from a single or limited missile launch, and from sources that are unlikely to be either rational or predictable. The first is an accidental launch, a threat we avoided making protections against due to the potentially destabilizing effect on the precarious Cold War balance. That an accidental launch, by definition undeterrable, would today hit its target is almost incomprehensible. More likely than an accidental launch is the intentional launch of one or a few missiles, either by a nonstate actor (a terrorist or "rogue boat captain" as the scenario was described in the early 1980s) or a rogue state attempting to maximize damage as a prelude to broader conflict. This is especially likely in the underdeveloped theories pertaining to deterring third-party states. The United States can do nothing today to prevent India from launching a nuclear attack against Pakistan (or vice versa) except threaten retaliation. If Iran should launch a nuclear missile at Israel, or in a preemptory strike Israel should attempt the reverse, America and the world could only sit back and watch, hoping that a potentially world-destroying conflict did not spin out of control. When President Reagan announced his desire for a missile shield in 1983, critics pointed out that even if a 99-percent-reliable defense from space could be achieved, a 10,000 warhead salvo by the Soviet Union still allowed for the detonation of 100 nuclear bombs in American cities—and both we and the Soviets had enough missiles to make such an attack plausible. But if a single missile were launched out of the blue from deep within the Asian landmass today, for whatever reason, **a space-based missile defense system with 99-percent reliability would be a godsend**. And if a U.S. space defense could intercept a single Scud missile launched by terrorists from a ship near America's coasts before it detonated a nuclear warhead 100 miles up—creating an electromagnetic pulse that shuts down America's powergrid, halts America's banking and commerce, and reduces the battlefield for America's military to third world status —it might **provide for the very survival of our way of life.**

DOD SMR development allows the Air Force to deploy a space laser

Maybury, 12

(Chief Scientist-USAF, “Energy Horizons: United States Air Force Energy S&T Vision 2011-2026,” 1/31, http://www.fas.org/irp/doddir/usaf/energy.pdf)

Space is the ―ultimate high ground, providing access to every part of the globe, including denied areas. Space also has the unique characteristic that once space assets reach space, they require comparatively small amounts of energy to perform their mission, much of which is renewable. This simple characterization belies the complexity of the broader space enterprise. The bigger space energy picture must encompass the energy required to maintain and operate the launch ranges, the energy consumed during the launch of space assets, the energy generated and used in space, the energy consumed in satellite control stations, and the energy consumed in data ingest and processing centers. A comprehensive space energy strategy that addresses this full spectrum promises to enhance the resiliency, sustainability, and affordability of future space systems and operations through reduced consumption, increased energy supply, and cultural change. In the near-term, there should be an emphasis on lowering ground facilities and systems energy consumption, while continuing S&T investments for long-term assured energy advantage. The focus on ground facilities should include launch ranges, world-wide satellite control facilities, as well as the substantial data centers required to process and disseminate data to warfighters. In the longer term it may be possible to broaden the set of missions to be performed from space in an energy-efficient manner. This would require significant advances in S&T related to space-borne energy generation and storage technologies. In the mid- and long-term, substantial energy savings may be achieved through commonality in ground systems, efficient operations of those ground systems, as well as expanding the use of renewable energy resources. 3.1 Space Domain Strategic Context On-orbit assets continue to be among the highest demand and lowest density assets in the Air Force inventory. They consistently and effectively provide unique capability to the community. These assets are constrained, not just by the size of the payloads they carry, but also by their capability. Their austere operational environment coupled with current technology constraints means these systems regularly are required to operate long past their projected life. S&T that increases energy production, storage, and utilization of on-orbit assets can both provide longer life systems or increase capability value for the Air Force. In contrast to the air domain, assets in the space portfolio do not use traditional aviation fuels for mobility (airlift and air refueling). Indeed, once space assets are placed in orbit, with the very small exception of on-board consumables (to include propulsion for satellite maneuverability), only energy for the associated ground facilities and systems is required to maintain and operate them. Although there is an energy cost in getting systems to space, it is relatively small compared to the energy costs of the ground infrastructure. Therefore, in the near-term, investments in S&T that reduce the energy costs of space systems should focus primarily on reducing the energy costs of the associated ground facilities and systems. Nonetheless, there are promising S&T projects, such as the Reusable Booster System (RBS) and revolutionary small launch vehicles, that may substantially reduce the cost to orbit by applying lessons learned from the commercial aircraft industry to the RBS. For example, reuse may dramatically reduce manufacturing costs while simultaneously permitting much faster turnaround times. However, the full implications of reusable launch vehicles on energy consumption are not yet fully understood. The reusable components of RBS must be rocketed or jetted back to the launch base, resulting in greater use of energy for every launch. The energy impact of RBS requires detailed study. Additional potentially large energy cost savings could be achieved by employing other technologies emphasized in Technology Horizons, including fractionated, composable, and networked space systems. Much smaller systems that may perform the same functions as larger systems offer the possibility of substantially lowering launch costs and reducing on-orbit energy use. On the other hand, launching larger constellations of smaller satellites in low earth orbit may require more energy and use less efficient small launch vehicles. The total energy picture associated with the use of small, fractionated satellites requires careful analysis. Technology Horizons also advocated autonomous real-time, cross-domain, assured and trusted Space Situational Awareness (SSA). While autonomy can be used to save energy and cost for virtually any space mission, automating heavily human-directed SSA can potentially save large energy costs by reducing the presence of human interaction and, at the same time, increasing responsiveness. Figure 3.1 visually emphasizes that the overwhelming share of energy use for space domain operations is in terrestrial facilities and systems. Of the energy consumed for Air Force Space Command (AFSPC) missions, 97.2% is used by terrestrial facilities, 1.8% is used for ground vehicle transportation, and an estimated 1% is used for rocket launches. The commercial space sector has taken significantly different approaches on the ground infrastructure. Commercial space systems are operated with smaller facilities, small crews, and even autonomously. AFSPC has considered base closures to save significant costs; another solution, either in concert with base closures or by itself, is to establish an aggressive program to replace local power generation with renewable technologies. This would directly support the Air Force Energy Plan goals in the near-term, while also supporting assured sources of supply and cost reduction goals. Efforts are already underway to create more energy efficient ground assets using information from the cyber and infrastructure elements of Energy Horizons. A key opportunity is energy cost reduction for terrestrial radar and heating, ventilation, and air conditioning (HVAC) systems, but so far little work has been done on this. 3.2 Space Energy Technologies Leading edge technologies for energy performance of on-orbit space systems can transition to terrestrial facilities and systems to lower their energy intensity and consumption. These technologies fall into three categories which are addressed in turn: energy generation, storage, and transmission. 3.2.1 Energy Generation Table 3.1 illustrates the near-, mid- and far-term opportunities in energy generation. Today, there is an emphasis on continuing to evolve Inverted Meta-Morphic (IMM) solar cell arrays that are exceeding 34% efficiency in demonstration programs. In contrast, current terrestrial solar cell arrays for energy generation are far less efficient, below 20%. If packaging and production issues could be overcome, the improved efficiency offered by IMM would dramatically improve the output capabilities of ground facility solar array systems and, in turn, lower the use of non-renewable energy sources. There may also be spinoff to the air and ground domains through programs such as DARPA‘s Vulture program, a long-endurance unmanned vehicle powered by solar cells, which is taking advantage of the same kinds of efficiency improvements in terrestrial systems. The importance of these S&T efforts lies in the fact that every 1% increase in solar cell energy generation efficiency translates to a 3.5% increase in power (or decrease in mass) for the system. The downside is that as the efficiency improves, the relative benefit is not as great, so there is a point of diminishing returns with the evolutionary approach. In addition, amorphous-Silicon (a-Si) for flexible arrays has achieved 10% efficiency. While a-Si has not been fully space qualified, it could be transitioned to terrestrial systems such as Remotely Piloted Aircraft (RPA) and powered tents. There are other breakthrough space energy generation component technologies with the potential of achieving up to 70% efficiency. Examples include quantum dots and dilute nitrides in solar cells. But there are also entirely new technologies such as tethers to attempt to harvest energy from the geomagnetic field, and energy harvesting from system heat waste. These ideas, as well as **new developments in** nuclear energy, including **small modular reactors, can potentially fuel local facilities.** Recently, there has been progress in developing large systems for energy generation, including very large deployable panels as developed by the Air Force Research Lab (AFRL), DARPA, and industry. For example, we are currently limited to 27 kW arrays for satellite power, whereas more power is required for some future space missions by the AF, National Security Space (NSS), and NASA. **Employing larger and more efficient arrays will enable missions that require very high power, such as** space-based radar or **space-based laser missions**. An example of a system that is almost ready for a flight demonstration is the AFRL-Boeing 30 kW Integrated Blanket Interconnect System (IBIS). Figure 3.2 shows the technology and implementation concept for such a High Power Solar Array (HPSA). In the long term, increased solar cell efficiencies and revolutionary materials foreshadow the potential of 500 kW on-orbit power generation technologies, which would be transformational for performing missions from space-based systems. In addition to improving photovoltaic efficiencies, other potential energy production is possible in the mid- to far-term. In addition to modern designs for autosafing, small modular nuclear reactors for ground operations energy, nuclear energy has been demonstrated on several satellite systems (e.g., Radioisotope Thermoelectric Generators (RTG)). **This source provides consistent power regardless of harvestable resources** (i.e. solar) at a much higher energy and power density than current technologies. While the implementation of such a technology should be weighed heavily against potential catastrophic outcomes, **many investments into small modular reactors can be leveraged for space based systems. As these nuclear power plants decrease in size, their utility on board space based assets increases.**

#### Power beaming with SMRs vital to long-term space control

Downey, 4

(Lt. Col.-USAF, April, “Flying Reactors: The Political Feasibility of Nuclear Power in Space,” http://www.dtic.mil/dtic/tr/fulltext/u2/a425874.pdf)

The report also emphasizes the necessity for superior United States space based intelligence, surveillance and reconnaissance (ISR), and for space control. While **missions** envisioned under these drivers do not absolutely need SNP, any simple analysis demonstrates that they **would benefit by using nuclear power** because of its intrinsic advantages. Direct costs would fall, and mission effectiveness would **be enhanced by a small**, light, compact, long lived **system that provided** both ample **electrical power** and thrust for on-orbit maneuver. If DOD enters the SNP business, though, a major shift will occur. Instead of the few, rare SNP system launches that NASA would execute primarily for deep space missions, DOD missions would necessitate that SNP operations become commonplace. It is easy to envision constellations of nuclear powered satellites in orbit. One candidate system would be advanced space based radar, or perhaps a system with a mix of active and passive hyper-spectral sensors. Regular SNP operations in low earth orbit would add a new dimension to the public’s perception of risk. They would also require a different imperative to establish an effective public engagement process about the political feasibility of SNP before there is a need to increase the number of operational SNP platforms. In addition, SNP systems in orbit around the Earth will certainly be of concern to numerous international stakeholders.

# solvency

#### DoD acquisition of SMR’s ensures rapid military adoption

Andres and Breetz 11

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

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**.

#### Alternative financing arrangements reduce costs and spur unique development

Fitzpatrick, Freed and Eyoan, 11

Ryan Fitzpatrick, Senior Policy Advisor for Clean Energy at Third Way, Josh Freed, Vice President for Clean Energy at Third Way, and Mieke Eoyan, Director for National Security at Third Way, June 2011, Fighting for Innovation: How DoD Can Advance CleanEnergy Technology... And Why It Has To, content.thirdway.org/publications/414/Third\_Way\_Idea\_Brief\_-\_Fighting\_for\_Innovation.pdf

The DoD has over $400 billion in annual purchasing power, which means **the Pentagon could provide a sizeable market for new technologies**. **This can increase a technology’s scale of production, bringing down costs, and making the product** **more likely to successfully reach commercial markets**. **Unfortunately**, many potentially significant clean energy **innovations never get to the marketplace, due to a lack of capital** **during** the development and **demonstration stages. As a result,** **technologies that could help the military** meet its clean energy security and cost goals **are being abandoned or co-opted by competetors like China** before they are commercially viable here in the U.S. **By focusing its purchasing power on innovative products that will** help **meet its energy goals, DoD can provide** more **secure** and **cost-effective energy to the military—producing tremendous long-term savings**, while also **bringing** potentially **revolutionary technologies to the public**. Currently, many of these **technologies are passed over during** the **procurement** process **because of** higher **upfront costs—even if these technologies can reduce life-cycle costs** to DoD. The Department has only recently begun to consider life-cycle costs and the “fullyburdened cost of fuel” (FBCF) when making acquisition decisions. However, initial reports from within DoD suggest that the methodology for determining the actual FBCF needs to be refined and made more consistent before it can be successfully used in the acquisition process.32 The Department should fast-track this process to better maximize taxpayer dollars. Congressional appropriators— and the Congressional Budget Office—should also recognize the **savings that can be achieved by procuring advanced technologies to promote DoD’s energy goals**, even if these procurements come with higher upfront costs. Even if the Pentagon makes procurement of emerging clean energy technologies a higher priority, it still faces real roadblocks in developing relationships with the companies that make them. Many clean energy innovations are developed by small businesses or companies that have no previous experience working with military procurement officers. Conversely, many procurement officers do not know the clean energy sector and are not incentivized to develop relationships with emerging clean energy companies. Given the stakes in developing domestic technologies that would help reduce costs and improve mission success, the Pentagon should develop a program to encourage a better flow of information between procurement officers and clean energy companies—especially small businesses. Leverage Savings From Efficiency and Alternative Financing to Pay for Innovation. **In an age of government-wide austerity and tight** Pentagon **budgets**, current congressional **appropriations are simply not sufficient** to fund clean energy innovation. **Until Congress decides to direct additional resources** for this purpose, the **Defense** Department **must leverage** the money and other **tools it already has** to help develop clean energy. This can take two forms: repurposing money that was saved through energy efficiency programs for innovation and using alternative methods of financing to reduce the cost to the Pentagon of deploying clean energy. For several decades **the military has made** modest **use alternative financing** mechanisms t**o fund** clean **energy** and efficiency **projects when appropriated funds were insufficient**. In a 2010 report, GAO found that while only 18% of renewable energy projects on DoD lands used alternative financing, these projects account for 86% of all renewable energy produced on the Department’s property.33 This indicates that alternative financing can be particularly helpful to DoD in terms of bringing larger and more expensive projects to fruition. One advanced financing tool available to DoD is the energy savings performance contract (ESPC). These agreements allow DoD to contract a private firm to make upgrades to a building or other facility that result in energy savings, reducing overall energy costs without appropriated funds. The firm finances the cost, maintenance and operation of these upgrades and recovers a profit over the life of the contract. While mobile applications consume 75% of the Department’s energy,34 DoD is only authorized to enter an ESPC for energy improvements done at stationary sites. As such, Congress should allow DoD to conduct pilot programs in which ESPCs are used to enhance mobile components like aircraft and vehicle engines. This could accelerate the needed replacement or updating of aging equipment and a significant reduction of energy with no upfront cost. To maximize the potential benefits of ESPCs, DoD should work with the Department of Energy to develop additional training and best practices to ensure that terms are carefully negotiated and provide benefits for the federal government throughout the term of the contract.35 This effort could possibly be achieved through the existing memorandum of understanding between these two departments.36 The Pentagon should also consider using any long-term savings realized by these contracts for other energy purposes, including the promotion of innovative technologies to further reduce demand or increase general energy security. In addition to ESPCs, **the Pentagon** also **can enter into** extended agreements with utilities to use DoD land to generate electricity, or for the **long-term purchase of energy**. **These** **innovative financing mechanisms**, known respectively as enhanced use leases (EULs) and power purchase agreements (PPAs), **provide a valuable degree of certainty to third party generators**. In exchange, the **Department can leverage its existing resources**—either its land or its purchasing power—**to negotiate lower electricity rates** and dedicated sources of locallyproduced power with its utility partners. **DoD has unique authority among federal agencies to enter extended 30-year PPAs**, but only for geothermal energy projects and only with direct approval from the Secretary of Defense. Again, limiting incentives for clean energy generation to just geothermal power inhibits the tremendous potential of other clean energy sources to help meet DoD’s energy goals. Congress should consider opening this incentive up to other forms of clean energy generation, including the production of advanced fuels. Also, given procurement officials’ lack of familiarity with these extended agreements and the cumbersome nature of such a high-level approval process, the unique authority to enter into extended 30-year PPAs is very rarely used.37 DoD should provide officials with additional policy guidance for using extended PPAs and Congress should simplify the process by allowing the secretary of each service to approve these contracts. Congress should also investigate options for encouraging regulated utility markets to permit PPA use by DoD. Finally, when entering these agreements, the Department should make every effort to promote the use of innovative and fledgling technologies in the terms of its EULs and PPAs. CON C L U S ION **The Defense Department is in a unique position to foster and deploy innovation in clean energy technologies**. This has two enormous benefits for our military: it will make our troops and our facilities more secure and it will reduce the amount of money the Pentagon spends on energy, freeing it up for other mission critical needs. If the right steps are taken by Congress and the Pentagon, the military will be able to put its resources to work developing technologies that will lead to a stronger fighting force, a safer nation, and a critical emerging sector of the American economy. **The Defense Department has helped give birth to technologies and new economic sectors dozens of times before**. For its own sake and the sake of the economy, **it should make clean energy innovation its newest priority**.

#### Plenty of expertise

Armond Cohen 12, Executive Director of the Clean Air Task Force, “DoD: A Model for Energy Innovation?”, May 29, <http://www.catf.us/blogs/ahead/2012/05/29/dod-a-model-for-energy-innovation/>

Unlike most other agencies, including the Energy Department, the Pentagon is the ultimate customer for the new technology it helps create, spending some $200 billion each year on R&D and procurement. The implications of DoD’s role as customer have not been widely appreciated, as: · DoD, uniquely in government, supports multi-year, billion-dollar “end to end” innovation efforts that produce technology that is continuously tested, deployed and refined on bases and in the field, providing real world feedback that leads to increases in performance and reductions in cost. By contrast, most of the federal government’s civilian energy innovation efforts involve research loosely connected at best with the few commercialization efforts that it supports. · DoD and its contractors know how to bring together multiple innovations to achieve system-level advances leading to big performance gains (examples range from nuclear submarines to unmanned aircraft to large-scale information systems). This systems approach is precisely what is needed to advance clean energy technologies. · Relatively stable, multi-year funding allows the Pentagon to pursue “long cycle” innovation that is necessary for large, capital- intensive technologies and supports a highly capable contractor base that can respond to changing national security demands. · The Pentagon’s scope and budget has allowed it to experiment with new and creative innovation tools such as the well-known Defense Advanced Projects Research Agency, which has produced extraordinary technological breakthroughs; and the Environmental Security Technology Certification Program, which develops and demonstrates cost-effective improvements in environmental and energy technologies for military installations and equipment. · Because of DoD’s size and demands for performance and reliability, it is unique among government and private sector organizations as a demonstration test-bed. Smart-grid technologies and advanced energy management systems for buildings are already poised to benefit from this aspect of the Pentagon’s innovation system. · DoD has collaborated effectively with other federal agencies, including the Department of Energy and its predecessors (for example, to advance nuclear energy technologies). Continuing competition and cooperation between DoD and DOE will spur energy innovation.  DoD’s innovation capabilities can enhance U.S. national security, improve U.S. international competitiveness, and spur global energy restructuring and greenhouse gas emissions reductions. At the same time, while providing enormous opportunities to develop and test energy efficiency technologies and small scale distributed energy appropriate to forward bases, the Pentagon is unlikely to become an all-purpose hub for advancing all categories of clean-energy technologies, because its energy innovation activities will be sustainable only where they can support the nation’s defense capabilities. Therefore, many other large-scale technologies that are of great importance to improving the environment, such as carbon-free central station generation or zero carbon transportation, may not as easily fit with DoD’s mission. Possible exceptions might include small modular nuclear reactors that can be used for producing independent, non-grid power at military bases, or, conceivably, zero-carbon liquid fuels other than anything resembling current generation biofuels.

#### No workforce shortage

ITA 11

(International Trade Administration, “The Commercial Outlook for U.S. Small Modular Nuclear Reactors” Manufacturing and Services Competitiveness Report, February 2011, US Department of Commerce)

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 (for 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 localiza-tion that is typically necessary for building larger reactors

# link uq

#### DoE just massively increased SMR incentives, but it fails

DoD Energy Blog, 2/16/11, Good Things in Small Packages:Small Reactors for Military Power Good Things in Small Packages:Small Reactors for Military Power, dodenergy.blogspot.com/2011/02/good-things-in-small-packagessmall.html

They conclude that DOD should lead the charge for small reactors to meet their own needs as well as to make sure that the US leads that industry’s development. When first written the paper mentioned that most of the technology was stymied somewhere between the drawing board and production. But there is good news in the President’s 2011 Budget for nukes. The New York Times reported that the budget contains $500 million over five years for DOE to complete two designs and secure National Regulatory Commission (NRC) approval. The reactors will be built entirely in a factory and trucked to the site, like “modular homes”. Sounds just like what Dr. Andres ordered. **Only problem is that $500 million is only about half of the cost to get to NRC approval. Actual production is in the $2 billion neighborhood**, and that is a pricey neighborhood. Enter Amory Lovins. Amory has often derided the cost for nuclear power as an unnecessary expenditure. His argument is that micropower is the way of the future, not big honking gigawatt nuclear power plants. Although there has been a resurgence in the interest in nuclear power, **it is still difficult to find private investments willing to underwrite the expense**. Maybe the development of small nukes for national security reasons will lead to cost effective small nukes for distributed micropower nationwide. Small reactors for FOBs are more problematic. Even Bagram only needs about 25 MW with other FOBS being smaller. Security will be the first concern. If someone tries a smash and grab at Fort Hood they have to go through a couple of armored divisions and have a long way to got to get away. Kabul to Peshawar is only 128 miles. Cost shouldn’t be an overriding factor in considering secure power, but even at a 75% cost reduction in production, half a billion for 25MW is a bit much. Of course if you could produce a 300MW system, Bagram could air condition Kabul! The real soft power. My buddy, T.C. the fighter pilot, would tell you that DOD's mission is to fight and win the Nation's wars, not spark business recovery. DOD needs to focus on conserving energy. “Reducing the consumption at Miramar by 50% might save a lot of fuel and money, but I'd rather reduce consumption by 50% at PB Jugroom even though the savings in gallons and dollars are tiny.” Reducing demand reduces risk. All that being said, it may well be worth DOE and DOD efforts to explore the potential. It is something that may be beyond the means of commercial entities, but not government (See China). If there is going to be a market here, let us not be left behind as we have been with other alternative energy production means.

#### And there are 3 demo projects in progress, but no incentives

ANA 12

(Alliance for Nuclear Accountability, “ Documents Reveal Time-line and Plans for “Small Modular Reactors” (SMRs) at the Savannah River Site (SRS) Unrealistic and Promise no Funding” June 8, 2012, <http://www.ananuclear.org/Issues/PlutoniumFuelMOX/tabid/75/articleType/ArticleView/articleId/558/Default.aspx>)

“While SRS may superficially appear to present certain attractive aspects for the location of SMRs, the site has not had experience with operation of nuclear reactors in over twenty years and has no current expertise in reactor operation,” said Clements. “While DOE is set to chose two SMR designs to fund for further development, SRS affirms that no construction funds will be provided, leaving vendors with the difficult and perhaps insurmountable task to find private funding for SMR construction.”

Two of the three separate “Memoranda of Agreement” for three different and still hypothetical SMR designs include deployment timelines which are already admitted by DOE to be inaccurate since they were signed less than six months ago.

# 2ac

# at heg bad

#### Hegemonic strategy inevitable

Calleo, Director – European Studies Program and Professor @ SAIS, ‘10

(David P, “American Decline Revisited,” *Survival*, 52:4, 215 – 227)

The history of the past two decades suggests that adjusting to a plural world is not easy for the United States. As its economic strength is increasingly challenged by relative decline, it clings all the more to its peerless military prowess. As the wars in Iraq and Afghanistan have shown, that overwhelming military power, evolved over the Cold War, is less and less effective. In many respects, America's geopolitical imagination seems frozen in the posture of the Cold War. The lingering pretension to be the dominant power everywhere has encouraged the United States to hazard two unpromising land wars, plus a diffuse and interminable struggle against 'terrorism'. Paying for these wars and the pretensions behind them confirms the United States in a new version of Cold War finance. Once more, unmanageable fiscal problems poison the currency, an old pathology that firmly reinstates the nation on its path to decline. It was the hegemonic Cold War role, after all, that put the United States so out of balance with the rest of the world economy. In its hegemonic Cold War position, the United States found it necessary to run very large deficits and was able to finance them simply by creating and exporting more and more dollars. The consequence is today's restless mass of accumulated global money. Hence, whereas the value of all global financial assets in 1980 was just over 100% of global output, by 2008, even after the worst of the financial implosion, that figure had exploded to just under 300%.25 Much of this is no doubt tied up in the massive but relatively inert holdings of the Chinese and Japanese. But thanks to today's instantaneous electronic transfers, huge sums can be marshalled and deployed on very short notice. It is this excess of volatile money that arguably fuels the world's great recurring bubbles. It can create the semblance of vast real wealth for a time, but can also (with little notice) sow chaos in markets, wipe out savings and dry up credit for real investment. What constitutes a morbid overstretch in the American political economy thus ends up as a threat to the world economy in general. To lead itself and the world into a more secure future the United States must put aside its old, unmeasured geopolitical ambitions paid for by unlimited cheap credit. Instead, the United States needs a more balanced view of its role in history. But America's post-Soviet pundits have, unfortunately, proved more skilful at perpetuating outmoded dreams of past glory than at promoting the more modest visions appropriate to a plural future. One can always hope that newer generations of Americans will find it easier to adjust to pluralist reality. The last administration, however, was not very encouraging in this regard. III What about Barack Obama? So far, his economic policy has shown itself probably more intelligent and certainly more articulate than his predecessor's. His thinking is less hobbled by simple-minded doctrines. It accepts government's inescapable role in regulating markets and providing a durable framework for orderly governance and societal fellowship. To be sure, the Obama administration, following in the path of the Bush administration, has carried short-term counter-cyclical stimulation to a previously unimagined level. Perhaps so radical an expansion of credit is unavoidable under present circumstances. The administration is caught between the need to rebalance by scaling back and the fear that restraint applied now will trigger a severe depression. Obama's chief aide, Rahm Emanuel, is famous for observing: 'Rule one: Never allow a crisis to go to waste. They are opportunities to do big things.'26 So far, Obama's administration has made use of its crisis to promote an unprecedented expansion of welfare spending.27 Much of the spending is doubtless good in itself and certainly serves the administration's strong counter-cyclical purposes. But at some point the need to pass from expansion to stabilisation will presumably be inescapable. Budget cuts will have to be found somewhere, and demographic trends suggest that drastic reductions in civilian welfare spending are unlikely. Elementary prudence might suggest that today's financial crisis is an ideal occasion for America's long-overdue retreat from geopolitical overstretch, a time for bringing America's geopolitical pretensions into harmony with its diminishing foreign possibilities and expanding domestic needs. The opportunities for geopolitical saving appear significant. According to the Congressional Budget Office (CBO), current military plans will require an average military budget of $652bn (in 2010 dollars) each year through 2028. The estimate optimistically assumes only 30,000 troops will be engaged abroad after 2013. As the CBO observes, these projections exceed the peak budgets of the Reagan administration's military build-up of the mid-1980s (about $500bn annually in 2010 dollars). This presumes a military budget consuming 3.5% of GDP through 2020.28 Comparable figures for other nations are troubling: 2.28% for the United Kingdom, 2.35% for France, 2.41% for Russia and 1.36% for China.29 Thus, while the financial crisis has certainly made Americans fear for their economic future, it does not yet seem to have resulted in a more modest view of the country's place in the world, or a more prudent approach to military spending. Instead, an addiction to hegemonic status continues to blight the prospects for sound fiscal policy. Financing the inevitable deficits inexorably turns the dollar into an imperial instrument that threatens the world with inflation.

#### Status quo solves—Obama has moved to multilateralism on Libya and beyond. The UN is back, and other nations are following the US lead!

**World Outline**, postgraduate student in international affairs at King’s College, **1/24**/2012

[“How valuable is multilateral diplomacy in a post-9/11 world?,” <http://worldoutline.wordpress.com/2012/01/24/how-valuable-is-multilateral-diplomacy-in-a-post-911-world/>]

At the turn of the last century, 189 world leaders convened at the Millennium Summit and approved the Millennium Declaration which outlined eight specific goals that the United Nations was to achieve by 2015.[4] Yet, just a year later the 9/11 terrorist attacks tilted the world upon its head. The Security Council was rallied into action after the attacks and unanimously backed the United States against the threat which had caused so much devastation.[5] However, a wounded United States became increasingly relentless and unilateral in their ‘War on Terror’; when the Security Council refused to authorise a US attack upon an allegedly nuclear-armed Iraq, the United States, led by George. W. Bush, launched the assault anyway without UN approval.[6] This has been referred to as the ‘crisis of multilateralism’, as the United States undermined the very institution of which it is the biggest financial contributor and the most influential player.[7] If the founding member of the UN was refusing to follow the guidelines of the institution then why should other states follow the rules? This act set a worrying precedent for the rest of the world and, as Kofi Annan asserted, ‘undermined confidence in the possibility of collective responses to our common problems’.[8] Other instances of American unilateralism are Bush’s abstention from the Human Rights Council, his refusal to sign the Kyoto Protocol and the US departure from the Comprehensive Test Ban Treaty. The United States was losing sight of the benefits that multilateral diplomacy has to offer. However, the arrival of Barack Obama at the Oval Office has **revived multilateral values within US foreign policy**. The Obama administration has realised that it must now engage with the UN and this has marked a ‘**transitional moment in the history of multilateralism**’.[9] In his 2010 National Security Strategy, Obama acknowledged the fact that the US had been successful after the Second World War by pursuing their interests within multilateral forums such as the United Nations and not outside of them.[10] The global financial crisis of 2008 and the European Union’s sovereign debt crisis have demonstrated just how interdependent the economies of the western world are and these crises have created an age of austerity in which multilateralism is needed more than ever before.[11] The US has overstretched its resources and is now currently winding down two wars in Afghanistan and Iraq; they have realised that they simply do not have the means to conduct their foreign affairs exclusively anymore. **Clear indications of Washington’s improved multilateral engagement with the UN** since Obama’s inauguration, **and the changing attitude in US foreign policy**, are the economic sanctions negotiated over Iran, Obama’s decision for the US to join the Human Rights Council and, more specifically, its participation in the recent Libya mission. In Libya, the US provided support for the mission, yet played a subdued role in the campaign, allowing its European counterparts to take the lead. In contrast to his predecessor, Obama is displaying pragmatism rather than sentimentalism in his search for partners, making alliances in order to adapt to the emerging multipolar world; this is typified by Obama’s recent visit to the Asia-Pacific and his tour of South America (Brazil, Chile and El Salvador) in 2010. For the time being, US unipolarity looks to be a thing of the past; its **foreign policy is changing from Bush’s unilateralism at the start of the century to a more multilateral approach at the beginning of a new decade** under Obama.[12] This is the **correct precedent** that the most powerful nation in the world should be setting for other states to follow. The fact that the US is now engaging with the UN to counter global problems has restored the credibility that the UN had lost after the Iraq debacle and, by setting this example, **other nations will follow suit** and the international community as a whole can only benefit. From this change in US foreign policy, it is clear that multilateral diplomacy is of more value today than it was a decade ago.

# no commercialize

Nuclear’s too expensive

Folbre, professor of economics – University of Massachusetts, Amherst, 3/26/’12

(Nancy, “The Nurture of Nuclear Power,” <http://economix.blogs.nytimes.com/2012/03/26/the-nurture-of-nuclear-power/>)

Remember the brouhaha about $563 million in Obama administration loan guarantees to Solyndra, the solar panel manufacturer that went belly up last fall? Neither President Obama nor Republicans in Congress have voiced opposition to an expected $8.3 billion Energy Department guarantee to help the Southern Company, a utility giant, build nuclear reactors in Georgia. Pressed to respond to the comparison, Representative Cliff Stearns, Republican of Florida and chairman of the Energy and Commerce subcommittee on oversight and investigations, explained that the loan guarantee for nuclear power plant construction was for a “proven industry that has been successful and has established a record.” The nuclear power industry has certainly established a record – for terrifying accidents. Most recently, the Fukushima Daiichi disaster in Japan led to the evacuation of 90,000 residents who have yet to return home and to the resignation of the prime minister. It prompted the German government to begin phasing out all nuclear generation of electricity by 2022. Yet the industry has proved remarkably successful at garnering public support in the United States, ranging from public insurance against accident liability to loan guarantees. An article last year in The Wall Street Journal observed that subsidies per kilowatt hour during its initial stages of development far exceeded those provided to solar and wind energy technologies. According to a detailed report published by the Union of Concerned Scientists, subsidies to the nuclear fuel cycle have often exceeded the value of the power produced. Buying power on the open market and giving it away for free would have been less costly. Heightened concerns about safety have driven recent cost estimates even higher, scaring off most private investors. Travis Hoium, an analyst who has written extensively about the industry on the investment Web site The Motley Fool, calls nuclear power a dying business. In an article, “Warren Buffett Wants a Subsidy From You,” he clearly explains recent efforts to shift risk from investors to ratepayers by allowing utilities to charge for construction in advance. Investor interest in nuclear-generated electricity has declined partly as a result of the boom in shale gas extraction. But energy sources that don’t increase carbon emissions are also playing a major role, with wind, hydropower and other renewables projected to provide about 30 percent of expected additions to power generation capacity in the United States between 2010 and 2035.

#### No accidents – SMR’s are self-contained and have passive shutdown – that’s kessides

#### No impact

Rod **Adams 12**, Former submarine Engineer Officer, Founder, Adams Atomic Engines, Inc., “Has Apocalyptic Portrayal of Climate Change Risk Backfired?”, May 2, <http://atomicinsights.com/2012/05/has-apocalyptic-portrayal-of-climate-change-risk-backfired.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+AtomicInsights+%28Atomic+Insights%29>

Not only was the discussion enlightening about the reasons why different people end up with different opinions about climate change responses when presented with essentially the same body of information, but it also got me thinking about a possible way to fight back against the Gundersens, Caldicotts, Riccios, Grossmans and Wassermans of the world. That group of five tend to use apocalyptic rhetoric to describe what will happen to the world if we do not immediately start turning our collective backs on all of the benefits that abundant atomic energy can provide. They spin tall tales of deformed children, massive numbers of cancers as a result of minor radioactive material releases, swaths of land made “uninhabitable” for thousands of years, countries “cut in half”, and clouds of “hot particles” raining death and destruction ten thousand miles from the release point. Every one of those clowns have been repeating similar stories for at least two solid decades, and continue to repeat their stories even after supposedly catastrophic failures at Fukushima have not resulted in a single radiation related injury or death. According to eminent scientists – like Dr. Robert Gale – Fukushima is unlikely to EVER result in any measurable increase in radiation related illness. One important element that we have to consider to assess cancer risks associated with an accident like Fukushima is our baseline risk for developing cancer. All of us, unfortunately, have a substantial risk of developing cancer in our lifetime. For example, a 50-year-old male has a 42% risk of developing cancer during his remaining life; it’s almost the same for a 10-year-old. This risk only decreases when we get much older and only because we are dying of other causes. It’s true that excess radiation exposure can increase our cancer risk above baseline levels; it’s clear from studies of the survivors of the 1945 atomic bombings of Hiroshima and Nagasaki, of people exposed to radiation in medical and occupational settings, and of people exposed to radon decay products in mines and home basements. When it comes to exposures like that of Fukushima, the question is: What is the relative magnitude of the increased risk from Fukushima compared to our baseline cancer risk? Despite our fears, it is quite small. If the nuclear industry – as small and unfocused as it is – really wanted to take action to isolate the apocalyptic antinuclear activists, it could take a page from the effective campaign of the fossil fuel lobby. It could start an integrated campaign to help the rest of us to remember that, despite the dire predictions, the sky never fell, the predicted unnatural deaths never occurred, the deformations were figments of imagination, and the land is not really irreversibly uninhabitable for generations. The industry would effectively share the story of Ukraine’s recent decision to begin repopulating the vast majority of the “dead zone” that was forcibly evacuated after the Chernobyl accident. It would put some context into the discussion about radiation health effects; even if leaders shy away from directly challenging the Linear No Threshold (LNT) dose assumption, they can still show that even that pessimistic model says that a tiny dose leads to a tiny risk. Aside: My personal opinion is that the LNT is scientifically unsupportable and should be replaced with a much better model. We deserve far less onerous regulations; there is evidence that existing regulations actually cause harm. I hear a rumor that there is a group of mostly retired, but solidly credentialed professionals who are organizing a special session at the annual ANS meeting to talk about effective ways to influence policy changes. End Aside. Most of us recognize that there is no such thing as a zero risk; repeated assertions of “there is no safe level” should be addressed by accepting “close enough” to zero so that even the most fearful person can stop worrying. The sky has not fallen, even though we have experienced complete core meltdowns and secondary explosions that did some visible damage. Nuclear plants are not perfect, there will be accidents and there will be radioactive material releases. History is telling me that the risks are acceptable, especially in the context of the real world where there is always some potential for harm. The benefits of accepting a little nuclear risk are immense and must not be marginalized by the people who market fear and trembling.

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#### Financial incentives induce production using cash – that includes power purchasing

Webb 93 – lecturer in the Faculty of Law at the University of Ottawa (Kernaghan, “Thumbs, Fingers, and Pushing on String: Legal Accountability in the Use of Federal Financial Incentives”, 31 Alta. L. Rev. 501 (1993) Hein Online)

In this paper, "financial incentives" are taken to mean disbursements 18 of public funds or contingent commitments to individuals and organizations, intended to encourage, support or induce certain behaviours in accordance with express public policy objectives. They take the form of grants, contributions, repayable contributions, loans, loan guarantees and insurance, subsidies, procurement contracts and tax expenditures.19 Needless to say, the ability of government to achieve desired behaviour may vary with the type of incentive in use: up-front disbursements of funds (such as with contributions and procurement contracts) may put government in a better position to dictate the terms upon which assistance is provided than contingent disbursements such as loan guarantees and insurance. In some cases, the incentive aspects of the funding come from the conditions attached to use of the monies.20 In others, the mere existence of a program providing financial assistance for a particular activity (eg. low interest loans for a nuclear power plant, or a pulp mill) may be taken as government approval of that activity, and in that sense, an incentive to encourage that type of activity has been created.21 Given the wide variety of incentive types, it will not be possible in a paper of this length to provide anything more than a cursory discussion of some of the main incentives used.22 And, needless to say, the comments made herein concerning accountability apply to differing degrees depending upon the type of incentive under consideration.

By limiting the definition of financial incentives to initiatives where *public funds are either disbursed or contingently committed*, a large number of regulatory programs with incentive *effects* which exist, but in which no money is forthcoming,23 are excluded from direct examination in this paper. Such programs might be referred to as *indirect* incentives. Through elimination of indirect incentives from the scope of discussion, thedefinition of the incentive instrument becomes both more manageable and more particular. Nevertheless, it is possible that much of the approach taken here may be usefully applied to these types of indirect incentives as well.24 Also excluded from discussion here are social assistance programs such as welfare and *ad hoc* industry bailout initiatives because such programs are not designed primarily to *encourage* behaviours in furtherance of specific public policy objectives. In effect, these programs are assistance, but they are not incentives.

#### Precision – our definition’s from the DoE

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

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

#### No limits explosion – we agree to buy power from SMR’s, not the reactors themselves – solves their weapons laundry list

#### We are the topic - money for energy! Arbitrarily excluding one mechanism is unpredictable

#### Aff ground-last year proves weak mechanisms stink and only purchasing can defeat states

#### Reasonability – competing interpretations causes a race to the bottom – over incentivizes going for T

#### Uq is a crush – 90% of the field is already reading one mechanism for one energy source

# digger

#### Role of the ballot’s to simulate enactment of the plan – key to decisionmaking and fairness

#### Ontology is a DESTRUCTIVE HISTORICAL FICTION – any GATEWAY claims are just TRICKS based on how we SHELVE BOOKS

**Shirky 5**

Clay Shirky, teacher of NYU's graduate Interactive Telecommunications Program, 03/15/05

<http://www.itconversations.com/shows/detail470.html>

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There are many ways to organize data: labels, lists, categories, taxonomies, **ontologies.** Of these, ontology -- assertions about essence and relations among a group of items -- seems to be the highest-order method of organization. Indeed, the predicted value of the Semantic Web assumes that ontological successes such as the Library of Congress's classification scheme are easily replicable. Those successes are not easily replicable. Ontology, far from being an ideal high-order tool, is a **300-year-old hack**, now nearing the end of its useful life. **The problem ontology solves is not how to organize ideas but how to organize things** -- the Library of Congress's classification scheme exists not because concepts require consistent hierarchical placement, **but because books do**. The LC scheme, when examined closely, is riddled with inconsistencies, bias, and gaps. Top level geographic categories, for example, include "The Balkan Penninsula" and "Asia." The primary medical categories don't include oncology, defaulting to the older and now discredited notion that cancers were more related to specific organs than to common processes. And the list of such oddities goes on. The reason the LC scheme is accumulating these errors faster than they can correct them is the physical fact of the book, which makes a card catalog scheme necessary, and constant re-shelving impossible. Likewise, it enforces **cookie-cutter categorization** that doesn't reflect the polyphony of its contents--there is a literature of creativity, for example, made up of books about art, science, engineering, and so on, and yet those books are not categorized (which is to say shelved) together, because the LC scheme doesn't recognize creativity as an organizing principle. For a reader interested in creativity, the LC **ontology destroys value rather than creating it.**

As we have learned from the Web, when data is decoupled from physical presence, it is fluid enough to be grouped differently by different readers, and on different days. The Web's main virtue, in handling data, is to transmute organization from an a priori, content-based judgment to one that can be ad hoc, context-based, socially embedded, and constantly altered. The Web frees us from needing to argue about whether The Book of 5 Rings "is" a business book or a primer on war -- it is plainly both, and not only are we freed from making that judgment firmly or in advance, we are freed from needing to make it explicit at all.

This talk begins by exploring the rise of ontological classification. In the period after the invention of the printing press but before the invention of the search engine, intellectual production was vested in books, objects that were numerous but opaque. When you have more than a few hundred books, categorization becomes a forced move, even if the categories are somewhat arbitrary, because without categories, you can no longer locate individual books.

#### The alt is violent, causes passivity, and makes exploitation worse

**Graham ‘99**

(Phil, Graduate School of Management, University of Queensland, Heidegger’s Hippies: A dissenting voice on the “problem of the subject” in cyberspace, Identities in Action! 1999, <http://www.philgraham.net/HH_conf.pdf>)

Societies should get worried when Wagner’s music becomes popular because it usually means that distorted interpretations of Nietzsche’s philosophy are not far away. Existentialists create problems about what is, especially identity (Heidegger 1947). Existentialism inevitably leads to an authoritarian worldview: this, my Dionysian world of the eternally self-creating, the eternally self-destroying, this mystery world of twofold voluptuous delight, my “beyond good and evil,” without a goal, unless the joy of the circle itself is a goal; without will, unless a ring feels good will towards itself – do you want a name for this world? A solution to all its riddles? A light for you, too, you best-concealed, strongest, most intrepid, most midnightly men? – This world is the will to power – and nothing besides! And you yourselves are also this will to power – and nothing besides! (Nietzsche 1967/1997). Armed with a volume of Nietzsche**,** some considerable oratory skills, several Wagner records, and an existentialist University Rector in the form of Martin Heidegger, Hitler managed some truly astoundingfeats of strategic identity engineering (cf. Bullock, 1991). Upon being appointed to the Freiberg University, Heidegger pronounced the end of thought, history, ideology, and civilisation: ‘No dogmas and ideas will any longer be the laws of your being**.** The Fuhrer himself, and he alone, is the present and future reality for Germany’ (in Bullock 1991: 345). Heidegger signed up to an ideology-free politics: Hitler’s ‘Third Way’ (Eatwell 1997). The idealised identity, the new symbol of mythological worship, Nietzsche’s European Superman, was to rule from that day hence. Hitler took control of the means of propaganda: the media; the means of mental production: the education system; the means of violence: the police, army, and prison system; and pandered to the means of material production: industry and agriculture; and proclaimed a New beginning and a New world order. He ordered Germany to look forward into the next thousand years and forget the past. Heidegger and existentialism remain influential to this day, and history remains bunk (e.g. Giddens4, 1991, Chapt. 2). Giddens’s claims that ‘humans live in circumstances of … existential contradiction’, and that ‘subjective death’ and ‘biological death’ are somehow unrelated, is a an ultimately repressive abstraction: from that perspective, life is merely a series of subjective deaths, as if death were the ultimate motor of life itself (cf. Adorno 1964/1973). History is, in fact, the simple and straightforward answer to the “problem of the subject”. “The problem” is also a handy device for confusing, entertaining, and selling trash to the masses. By emphasising the problem of the ‘ontological self’ (Giddens 1991: 49), informationalism and ‘consumerism’ confines the navel-gazing, ‘narcissistic’ masses to a permanent present which they self-consciously sacrifice for a Utopian future (cf. Adorno 1973: 303; Hitchens 1999; Lasch 1984: 25-59). Meanwhile transnational businesses go about their work, ~~raping~~ [ruining] the environment**;** swindling each other and whole nations**;** and inflicting populations with declining wages, declining working conditions, and declining social security**.** Slavery is once again on the increase (Castells, 1998; Graham, 1999; ILO, 1998). There is no “problem of the subject”, just as there is no “global society”; there is only the mass amnesia of utopian propaganda, the strains of which have historically accompanied revolutions in communication technologies. Each person’s identity is, quite simply, their subjective account of a unique and objective history of interactions within the objective social and material environments they inhabit, create, and inherit. The identity of each person is their most intimate historical information, and they are its material expression: each person is a record of their own history at any given time. Thus, each person is a recognisably material, identifiable entity: an identity**.** This is their condition. People are not theoretical entities; they are people. As such, they have an intrinsic identity with an intrinsic value. No amount of theory or propaganda will make it go away. The widespread multilateral attempts to prop up consumer society and **hypercapitalism** as a valid and useful means of sustainable growth, indeed, as the path to an inevitable, international democratic Utopia, are already showing their disatrous cracks. The “problem” of subjective death threatens to give way, once again, to unprecedented mass slaughter. The numbed condition of a narcissistic society, rooted in a permanent “now”, a blissful state of Heideggerian Dasein, threatens to wake up to a world in which “subjective death” and ontology are the least of all worries.

#### Empirically no link between enframing and war

**Kaufman**, Prof Poli Sci and IR – U Delaware, **‘9**

(Stuart J, “Narratives and Symbols in Violent Mobilization: The Palestinian-Israeli Case,” *Security Studies* 18:3, 400 – 434)

Even when hostile narratives, group fears, and opportunity are strongly present, war occurs **only if these factors are harnessed.** Ethnic narratives and fears must combine to create significant ethnic hostility among mass publics. Politicians must also seize the opportunity to manipulate that hostility, evoking hostile narratives and symbols to gain or hold power by riding a wave of chauvinist mobilization. Such mobilization is often spurred by prominent events (for example, episodes of violence) that increase feelings of hostility and make chauvinist appeals seem timely. If the other group also mobilizes and if each side's felt security needs threaten the security of the other side, the result is a security dilemma spiral of rising fear, hostility, and mutual threat that results in violence. **A virtue of** this **symbolist theory is that symbolist logic explains why** ethnic **peace is more common than ethnonationalist war.** Even if hostile narratives, fears, and opportunity exist, severe violence usually can still be avoided if ethnic elites skillfully define group needs in moderate ways and collaborate across group lines to prevent violence: this is consociationalism.17 War is likely only if hostile narratives, fears, and opportunity spur hostile attitudes, chauvinist mobilization, and a security dilemma.

#### Perm do the plan and engage in meditative reflection about being

#### Life logically precedes essence, which is ineradicable

Zimmerman, professor of philosophy – Tulane University, ‘90

(Michael E, Confrontation with Modernity p. 265-266)

As I mentioned above, much of deconstruction is in fact motivated by a (frequently hidden) liberatory interest. If the technological society eliminates all differences and reduces everything to the same monochromatic raw material, however, whence can arise the "fissure" which causes the authoritarian system of signifiers to tremble, to quake, to loosen up? While significant changes in a prevailing cultural paradigm cannot be explained merely in terms of arbitrary human decisions, neither can free human decisions be discounted in such an explanation. Humans are thrown at birth into a cultural discourse and, hence, into a destiny which they themselves did not choose. People cannot return to the "origins" of that discourse in order to start a new one. To a large extent, then, individuals are for the most part players in a game of institutional, social, political, economic, literary, artistic, and religious discourse, only part of which they comprehend. Despite being shaped by such discourse, however, individuals are not merely automatons at the mercy of an inexorable destiny. Rather, they may also bring to their historical discourses unexpected insights, novel variations, new possibilities which reveal it is by no means fixed but instead is open to disrupture. It goes without saying, of course, that the possibility for such variation and novelty is greatly enhanced by political systems which both guarantee and encourage self-expression and which also promote the economic means necessary for individuals to develop the capacity for self-expression. Unfortunately, however, Heidegger regarded "self-expression" and "democratic principles" as bourgeois ideals symptomatic of the one-dimensional atomism and egoism of a modern subjectivism which was blind to the fact that the "actors" on the stage of human history were players in a drama that they did not themselves compose. If we may benefit from Heidegger's insight that modern technology is characterized by a one-dimensional way of disclosing entities, we must also be willing to criticize his presuppositions about the extent to which humans are incapable of resisting and developing alternatives to that disclosure.

#### Tech thought is inevitable

Kateb, professor of politics – Princeton, ‘97

(George, http://findarticles.com/p/articles/mi\_m2267/is\_/ai\_19952031)

But the question arises as to where a genuine principle of limitation on technological endeavor would come from. It is scarcely conceivable that Western humanity--and by now most of humanity, because of their pleasures and interests and their own passions and desires and motives--would halt the technological project. Even if, by some change of heart, Western humanity could adopt an altered relation to reality and human beings, how could it be enforced and allowed to yield its effects? The technological project can be stopped only by some global catastrophe that it had helped to cause or was powerless to avoid. Heidegger's teasing invocation of the idea that a saving remedy grows with the worst danger is useless. In any case, no one would want the technological project halted, if the only way was a global catastrophe. Perhaps even the survivors would not want to block its reemergence. As for our generation and the indefinite future, many of us are prepared to say that there are many things we wish that modern science did not know or is likely to find out and many things we wish that modern technology did not know how to do. When referring in 1955 to the new sciences of life, Heidegger says We do not stop to consider that an attack with technological means is being prepared upon the life and nature of man compared with which the explosion of the hydrogen bomb means little. For precisely if the hydrogen bombs do not explode and human life on earth is preserved, an uncanny change in the world moves upon us (1966, p. 52). The implication is that it is less bad for the human status or stature and for the human relation to reality that there be nuclear destruction than that (what we today call) genetic engineering should go from success to success. To such lengths can a mind push itself when it marvels first at the passions, drives, and motives that are implicated in modern technology, and then marvels at the feats of technological prowess. The sense of wonder is entangled with a feeling of horror. We are past even the sublime, as conceptualized under the influence of Milton's imagination of Satan and Hell. It is plain that so much of the spirit of the West is invested in modern technology. We have referred to anger, alienation, resentment. But that cannot be the whole story. Other considerations we can mention include the following: a taste for virtuosity, skill for its own sake, an enlarged fascination with technique in itself, and, along with these, an aesthetic craving to make matter or nature beautiful or more beautiful; and then, too, sheer exhilaration, a questing, adventurous spirit that is reckless, heedless of danger, finding in obstacles opportunities for self-overcoming, for daring, for the very sort of daring that Heidegger praises so eloquently when in 1935 he discusses the Greek world in An Introduction to Metaphysics (1961, esp. pp. 123-39). All these considerations move away from anger, anxiety, resentment, and so on. The truth of the matter, I think, is that the project of modern technology, just like that of modern science, must attract a turbulence of response. The very passions and drives and motives that look almost villainous or hypermasculine simultaneously look like marks of the highest human aspiration, or, at the least, are not to be cut loose from the highest human aspiration.

#### The aff’s relationship to death is one of up-front recognition and humility. By banishing the specter of death, they just make the sarcophagus invisible, turning confrontation into obsession

Dollimore, Sociology – U Sussex, ’98

(Jonathan, Death, Desire and Loss in Western Culture, pg. 221)

Jean Baudrillard presents the argument for the existence of a denial of death in its most extreme form. For him, this denial is not only deeply symptomatic of contemporary reality, but represents an insidious and pervasive form of ideological control. His account depends heavily upon a familiar critique of the Enlightenment's intellectual, cultural and political legacy. This critique has become influential in recent cultural theory, though Baudrillard's version of it is characteristically uncompromising and sweeping, and more reductive than most. The main claim is that Enlightenment rationality is an instrument not of freedom and democratic empowerment but, on the contrary, of repression and violence. Likewise with the Enlightenment's secular emphasis upon a common humanity; for Baudrillard this resulted in what he calls 'the cancer of the Human' - far from being an inclusive category of emancipation, the idea of a universal humanity made possible the demonizing of difference and the repressive privileging of the normal: the 'Human' is from the outset the institution of its structural double, the 'Inhuman\*. This is all it is: the progress of Humanity and Culture are simply the chain of discriminations with which to brand 'Others' with inhumanity, and therefore with nullity, {p. 125) Baudrillard acknowledges here the influence of Michel Foucault, but goes on to identify something more fundamental and determining than anything identified by Foucault: at the very core of the 'rationality' of our culture, however, is an exclusion that precedes every other, more radical than the exclusion of madmen, children or inferior races, an exclusion preceding all these and serving as their model: the exclusion of the dead and of death, (p. 12.6) So total is this exclusion that, 'today, it is not normal to be dead, and this is new. To be dead is an unthinkable anomaly; nothing else is as offensive as this. Death is a delinquency, and an incurable deviancy' (p. 126). He insists that the attempt to abolish death (especially through capitalist accumulation), to separate it from life, leads only to a culture permeated by death - 'quite simply, ours is a culture of death' (p. 127). Moreover, it is the repression of death which facilitates 'the repressive socialization of life'; all existing agencies of repression and control take root in the disastrous separation of death from life (p. 130). And, as if that were not enough, our very concept of reality has its origin in the same separation or disjunction (pp. 130-33). Modern culture is contrasted with that of the primitive and the savage, in which, allegedly, life and death were not separated; also with that of the Middle Ages, where, allegedly, there was still a collectivist, 'folkloric and joyous' conception of death. This and many other aspects of the argument are questionable, but perhaps the main objection to Baudrillard's case is his view of culture as a macro-conspiracy conducted by an insidious ideological prime-mover whose agency is always invisibly at work (rather like God). Thus (from just one page), the political economy supposedly ^intends\* to eliminate death through accumulation; and 'our whole culture is just one huge effort to dissociate life and death' {p. 147; my emphases). What those like Baudrillard find interesting about death is not the old conception of it as a pre-cultural constant which diminishes the significance of all cultural achievement, but, on the contrary, its function as a culturally relative - which is to say culturally formative - construct. And, if cultural relativism is on the one hand about relinquishing the comfort of the absolute, for those like Baudrillard it is also about the new strategies of intellectual mastery made possible by the very disappearance of the absolute. Such modern accounts of how death is allegedly denied, of how death is the supreme ideological fix, entail a new intensity and complexity of interpretation and decipherment, a kind of hermeneutics of death. To reinterpret death as a deep effect of ideology, even to the extent of regarding it as the most fundamental ideological adhesive of modern political repression and social control, is simultaneously to denounce it as in some sense a deception or an illusion, and to bring it within the domain of knowledge and analysis as never before. Death, for so long regarded as the ultimate reality - that which disempowers the human and obliterates all human achievement, including the achievements of knowledge - now becomes the object of a hugely empowering knowledge. Like omniscient seers, intellectuals like Baudrillard and Bauman relentlessly anatomize and diagnose the modern (or post-modern) human condition in relation to an ideology of death which becomes the key with which to unlock the secret workings of Western culture in all its insidiousness. Baudrillard in particular applies his theory relentlessly, steamrollering across the cultural significance of the quotidian and the contingent. His is an imperialist, omniscient analytic, a perpetual act of reductive generalization, a self-empowering intellectual performance which proceeds without qualification and without any sense that something might be mysterious or inexplicable. As such it constitutes a kind of interpretative, theoretical violence, an extreme but still representative instance of how the relentless anatomizing and diagnosis of death in the modern world has become a struggle for empowerment through masterful -i.e. reductive - critique. Occasionally one wonders if the advocates of the denial-of-death argument are not themselves in denial. They speak about death endlessly yet indirectly, analysing not death so much as our culture's attitude towards it. To that extent it is not the truth of death but the truth of our culture that they seek. But, even as they make death signify in this indirect way, it is still death that is compelling them to speak. And those like Baudrillard and Bauman speak urgently, performing intellectually a desperate mimicry of the omniscience which death denies. One senses that the entire modern enterprise of relativizing death, of understanding it culturally and socially, may be an attempt to disavow it in the very act of analysing and demystifying it. Ironically then, for all its rejection of the Enlightenment's arrogant belief in the power of rationality, this analysis of death remains indebted to a fundamental Enlightenment aspiration to mastery through knowledge. Nothing could be more 'Enlightenment', in the pejorative sense that Baudrillard describes, than his own almost megalomaniac wish to penetrate the truth of death, and the masterful controlling intellectual subject which that attempt presupposes. And this may be true to an extent for all of us more or less involved in the anthropological or quasi-anthropological accounts of death which assume that, by looking at how a culture handles death, we disclose things about a culture which it does not know about itself. So what has been said of sex in the nineteenth century may also be true of death in the twentieth: it has not been repressed so much as resignified in new, complex and productive ways which then legitimate a never-ending analysis of it. It is questionable whether the denial of death has ever really figured in our culture in the way that Baudrillard and Bauman suggest. Of course, the ways of dealing with and speaking about death have changed hugely, and have in some respects involved something like denial. But in philosophical and literary terms there has never been a denial of death.2 Moreover, however understood, the pre-modern period can hardly be said to have been characterized by the 'healthy\* attitude that advocates of the denial argument often claim, imply or assume. In fact it could be said that we can begin to understand the vital role of death in Western culture only when we accept death as profoundly, compellingly and irreducibly traumatic.

#### Swazo’s alternative does not solve and paralyses politics

**Thiele 4**

Review: A (Political) Philosopher by Any Other Name: The Roots of Heidegger's ThoughtAuthor(s): Leslie Paul ThieleSource: Political Theory, Vol. 32, No. 4 (Aug., 2004), pp. 570-579Published

Professor, university of Florida

Leslie Paul Thiele received his Ph.D. from Princeton University in 1989. His research focuses on continental political thought, environmental ethics and politics, and the intersection of political philosophy, psychology, and cultural studies.

But it is chiefly against Swazo's notion of the revolutionary power of "essential words" that I want to lodge a complaint. Swazo writes, in vintage Heideggerian fashion, that "We stand before the possibility of an 'originary advent' if-but only if-- we are prepared to experience the saying of these words as the task reserved for thinking at the end of philosophy . . . autarchology is the name for that essential thinking of the political experi-enced under the sway of the second beginning" (p. 233). Swazo admits that he risks, as did Heidegger, a certain "immodesty" in claiming that he has (re)coined the basic words whose enunciation will usher in a global politics of authentic dwelling (p. 229). He also risks transforming terms meant to stimulate questioning into narcotic chants-a pitfall for many Heidegger scholars. Swazo accepts Heidegger's assertion that "apart from the truth of Being man does not matter" (p. 174). His point is that unless we let Being be, we cannot hope to learn how to let humanity be in a way that does not deploy it as just another component of the standing reserve. The problem is that the inspiring effort to nourish our political lives with philosophical insight **becomes perverse-and tends to create victims-precisely when we believe we have wholly captured philosophic truth** in word or deed. Anxieties are heightened by Heidegger's own linkage of ontological thinking to **the way a Volk pursues i ts world-historical destiny-a linkageS wazo does not confront**. **An ontological mantra will not redirect the historical trajectory** **of socio-economic**, technological, and cultural **forces on a global scale**.

# cp

#### Perm do all combinations of planks

#### No solve space – SMR’s key to beaming

#### Only smr’s solve the grid – renewables fail

Charles Barton 11, founder of the Nuclear Green Revolution blog, MA in philosophy, “Future storm damage to the grid may carry unacceptable costs”, April 30, <http://nucleargreen.blogspot.com/2011_04_01_archive.html>

Amory Lovins has long argued that the traditional grid is vulnerable to this sort of damage. Lovins proposed a paradigm shift from centralized to distributed generation and from fossil fuels and nuclear power to renewable based micro-generation. Critics have pointed to flaws in Lovins model. Renewable generation systems are unreliable and their output varies from locality to locality, as well as from day to day, and hour to hour. In order to bring greater stability and predictability to the grid, electrical engineers have proposed expanding the electrical transmission system with thousands of new miles of transmission cables to be added to bring electricity from high wind and high sunshine areas, to consumers. This would lead, if anything, to greater grid vulnerability to storm damage in a high renewable penetration situation. Thus Lovins renewables/distributed generation model breaks down in the face of renewables limitations. Renewables penetration, will increase the distance between electrical generation facilities and customer homes and businesses, increasing the grid vulnerable to large scale damage, rather than enhancing reliability. Unfortunately Lovins failed to note that the distributed generation model actually worked much better with small nuclear power plants than with renewable generated electricity. Small nuclear plants could be located much closer to customer's homes, decreasing the probability of storm damage to transmission lines. At the very worst, small NPPs would stop the slide toward increased grid expansion. Small reactors have been proposed as electrical sources for isolated communities that are too remote for grid hookups. If the cost of small reactors can be lowered sufficiently it might be possible for many and perhaps even most communities to unhook from the grid while maintaining a reliable electrical supply. It is likely that electrical power will play an even more central role in a post-carbon energy era. Increased electrical dependency requires increased electrical reliability, and grid vulnerabilities limit electrical reliability. Storm damage can disrupt electrical service for days and even weeks. In a future, electricity dependent economy, grid damage can actually impede storm recovery efforts, making large scale grid damage semi-self perpetuating. Such grid unreliability becomes a threat to public health and safety. Thus grid reliability will be a more pressing future issue, than it has been. It is clear that renewable energy sources will worsen grid reliability, Some renewable advocates have suggested that the so called "smart grid" will prevent grid outages. Yet the grid will never be smart enough to repair its own damaged power lines. In addition the "smart grid" will be venerable to hackers, and would be a handy target to statures. A smart grid would be an easy target for a Stuxnet type virus attack. Not only does the "smart grid" not solve the problem posed by grid vulnerability to storm damage, but efficiency, another energy approach thought to be a panacea for electrical supply problems would be equally useless. Thus, decentralized electrical generation through the use of small nuclear power plants offers real potential for increasing electrical reliability, but successful use of renewable electrical generation approaches may worsen rather than improved grid reliability.

#### Super vulnerable

Mo et al 12

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A wide variety of motivations exist for launching an attack on the power grid, ranging from economic reasons (e.g., reducing electricity bills), to pranks, and all the way to terrorism (e.g., threatening people by controlling electricity and other life-critical resources). The emerging smart grid, while benefiting the benign participants (consumers, utility companies), also provides powerful tools for adversaries. The smart grid will reach every house and building, giving potential attackers easy access to some of the grid components. While incorporating information technology (IT) systems and networks, the smart grid will be exposed to a wide range of security threats [5]. Its large scale also makes it nearly impossible to guarantee security for every single subsystem. Furthermore, the smart grid will be not only large but also very complex. It needs to connect different systems and networks, from generation facilities and distribution equipment to intelligent end points and communication networks, which are possibly deregulated and owned by several entities. It can be expected that the heterogeneity, diversity, and complexity of smart grid components may introduce new vulnerabilities, in addition to the common ones in interconnected networks and stand-alone microgrids [3]. To make the situation even worse, the sophisticated control, estimation, and pricing algorithms incorporated in the grid may also create additional vulnerabilities. The first-ever control system malware called Stuxnet was found in July 2010. This malware, targeting vulnerable SCADA systems, raises new questions about power grid security [6]. SCADA systems are currently isolated, preventing external access. Malware, however, can spread using USB drives and can be specifically crafted to sabotage SCADA systems that control electric grids. Furthermore, increasingly interconnected smart grids will unfortunately provide external access which in turn can lead to compromise and infection of components.

#### Doesn’t solve regulatory confusion or cyberdefense

Daniel Sater 11, Research Fellow at Global Green USA’s Security and Sustainability Office, “Military Energy Security: Current Efforts and Future Solutions”, August, <http://globalgreen.org/docs/publication-185-1.pdf>

Cybersecurity remains one of the leading challenges impeding the development of a smart grid. In January 2011, the GAO published a report on the progress being made on cybersecurity as it related to smart grids71. Unfortunately, the report did not specifically address microgrids. The GAO found six challenges, however, to the development of a smart grid. The DOD is nonetheless well suited to handle the challenges listed by the GAO and the confinement of microgrids to military installations should mitigate many cybersecurity risks. The challenges listed by the GAO and the advantages of military microgrids for cybersecurity appear below. Challenge 1: Aspects of the regulatory environment may make it difficult to ensure smart grid systems’ cybersecurity. The federal government and state governments regulate electricity production and distribution. Having multiple entities produce regulations can lead to conflicting rules and thus confusion. Microgrids on military installations should avoid many of the regulatory issues the GAO found with the smart grid. The confinement of microgrids to military bases means that only the DOD will have regulatory control over them. There is precedent for states to exempt military installations from state regulations. According to a different GAO report, states often excluded military installations from their renewable energy-production goals.72 Furthermore, it is unlikely that any state government would want to get into the politically untenable battle with the Pentagon over issuing competing regulations governing military bases. Challenge 2: Utilities are focusing on regulatory compliance instead of comprehensive security. Microgrid cybersecurity will benefit from having the same entity, the DOD, issue the microgrid regulations and own the microgrids. Utilities have little incentive to invest in security measures past the bare minimum necessary for regulatory compliance. However, unlike a utility, the DOD will suffer in the event of a cybersecurity failure and thus has incentives to pursue comprehensive security. Challenge 3: The electric industry does not have an effective mechanism for sharing information on cybersecurity. Different utility companies across different states do not have a central authority analogous to that which military bases have in the Pentagon. Though there will certainly be bureaucracy, the DOD has more capacity to share information about cybersecurity and cyber-attacks than utilities. Challenge 4: Consumers are not adequately informed about the benefits, costs, and risks associated with smart grid systems. The DOD can take steps to inform all of its employees about microgrids in ways that may not be available to utilities to inform their customers. The DOD could require short classes on the benefits and risks of microgrids for all its employees and more rigorous education for its base commanders and others making decisions about grid implementation. A utility company cannot require its customers to take a class. A utility’s best option for educating its customers would be to send out information packets with monthly bills and hope that consumers read them. Challenge 5: There is a lack of security features being built into certain smart grid systems. Given the importance of the DOD’s mission and the potentially catastrophic repercussions of lax cybersecurity, the Pentagon will not take the security of its microgrids lightly, especially with the recent publication of the “Department of Defense Strategy for Operating in Cyberspace.”73 Challenge 6: The electricity industry does not have metrics for evaluating cybersecurity. The lack of evaluation metrics is a serious problem, but the DOD could instruct USCYBERCOM to create a specific set of metrics for microgrid development.

#### Empirics

Andres and Breetz 11

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

In recent years, the U.S. Department of Defense (DOD) has become increasingly interested in the potential of small (less than 300 megawatts electric [MWe]) nuclear reactors for military use.1 DOD’s attention to small reactors stems mainly from two critical vulnerabilities it has identified in its infrastructure and operations: the dependence of U.S. military bases on the fragile civilian electrical grid, and the challenge of safely and reliably supplying energy to troops in forward operating locations. DOD has responded to these challenges with an array of initiatives on energy efficiency and renewable and alternative fuels. Unfortunately, even with massive investment and ingenuity, **these initiatives will be insufficient to solve DOD’s reliance on the civilian grid or its need for convoys in forward areas**. The purpose of this paper is to explore the prospects for addressing these critical vulnerabilities through small-scale nuclear plants.

#### Intermittency and land

Loudermilk 11

Micah J. Loudermilk, Research Associate for the Energy & Environmental Security Policy program with the Institute for National Strategic Studies at National Defense University, 5/31/11, Small Nuclear Reactors and US Energy Security: Concepts, Capabilities, and Costs, www.ensec.org/index.php?option=com\_content&view=article&id=314:small-nuclear-reactors-and-us-energy-security-concepts-capabilities-and-costs&catid=116:content0411&Itemid=375

When discussing the energy security contributions offered by small nuclear reactors, it is not enough to simply compare them with existing nuclear technology, but also to examine how they measure up against other electricity generation alternatives—renewable energy technologies and fossil fuels. Coal, natural gas, and oil currently account for 45%, 23% and 1% respectively of US electricity generation sources. Hydroelectric power accounts for 7%, and other renewable power sources for 4%. These ratios are critical to remember because idealistic visions of providing for US energy security are not as useful as realistic ones balancing the role played by fossil fuels, nuclear power, and renewable energy sources. Limitations of renewables Renewable energy technologies have made great strides forward during the last decade. In an increasingly carbon emissions and greenhouse gas (GHG) aware global commons, the appeal of solar, wind, and other alternative energy sources is strong, and many countries are moving to increase their renewable electricity generation. However, despite massive expansion on this front, renewable sources struggle to keep pace with increasing demand, to say nothing of decreasing the amount of energy obtained from other sources. The continual problem with solar and wind power is that, lacking efficient energy storage mechanisms, it is difficult to contribute to baseload power demands. Due to the intermittent nature of their energy production, which often does not line up with peak demand usage, electricity grids can only handle a limited amount of renewable energy sources—a situation which Germany is now encountering. Simply put, nuclear power provides virtually carbon-free baseload power generation, and renewable options are unable to replicate this, especially not on the scale required by expanding global energy demands. Small nuclear reactors, however, like renewable sources, can provide enhanced, distributed, and localized power generation. As the US moves towards embracing smart grid technologies, power production at this level becomes a critical piece of the puzzle. Especially since renewable sources, due to sprawl, are of limited utility near crowded population centers, small reactors may in fact prove instrumental to enabling the smart grid to become a reality.

#### Link to ptx cause it spends

# fiscal cliff

#### Decline doesn’t cause war

Morris Miller, Professor of Administration @ the University of Ottawa, ‘2K

(Interdisciplinary Science Review, v 25 n4 2000 p ingenta connect)

The question may be reformulated. Do wars spring from a popular reaction to a sudden economic crisis that exacerbates poverty and growing disparities in wealth and incomes? Perhaps one could argue, as some scholars do, that it is some dramatic event or sequence of such events leading to the exacerbation of poverty that, in turn, leads to this deplorable denouement. This exogenous factor might act as a catalyst for a violent reaction on the part of the people or on the part of the political leadership who would then possibly be tempted to seek a diversion by finding or, if need be, fabricating an enemy and setting in train the process leading to war. According to a study under- taken by Minxin Pei and Ariel Adesnik of the Carnegie Endowment for International Peace, there would not appear to be any merit in this hypothesis. After studying ninety-three episodes of economic crisis in twenty-two countries in Latin America and Asia in the years since the Second World War they concluded that:19 Much of the conventional wisdom about the political impact of economic crises may be wrong ... The severity of economic crisis – as measured in terms of inflation and negative growth – bore no relationship to the collapse of regimes ... (or, in democratic states, rarely) to an outbreak of violence ... In the cases of dictatorships and semi-democracies, the ruling elites responded to crises by increasing repression (thereby using one form of violence to abort another).

#### Squo green military spending still proves the link

#### Election renews Obama’s pol cap—makes the plan irrelevant

Mike Lillis, The Hill, 9/29/12, Democrats lay out second-term wish list for President Obama, thehill.com/homenews/campaign/259253-dems-lay-out-wish-list-for-a-second-obama-term

An Obama victory in November would lend the president a new fistful of political capital as he confronts Republican leaders over how to avoid the fiscal cliff and steer the polarized country through the next four years. More than a month before November's elections, his allies in the House are already offering tips for how to spend it.

“He's got to continue to concentrate on jobs,” Rep. Bill Pascrell said last week as the House was leaving town for a long, pre-election recess.

“I'm hoping he'll do immigration reform,” said Rep. Henry Cuellar (D-Texas).

“We should get back to an energy policy – one that acknowledges that climate change is real,” said Rep. Peter Welch (D-Vt.).

“The critical issues will be revenue generation … and … a concerted push on immigration reform,” said Rep. Raul Grijalva (D-Ariz.).

“I think he'd want his administration to start on healthcare,” said Rep. Mike Honda (D-Calif.).

The remarks highlight the sheer variety of issues the Democrats are hoping to address after two years in the House minority – and foreshadow the degree of pressure a reelected Obama would be under to satisfy his allies after a bruising campaign season.

The quotations also suggest some rising confidence among Democrats.

The presidential contest remains a close one, but recent polls showing Obama with a growing lead in the key battleground states of Ohio and Florida are indication that GOP contender Mitt Romney has a hard road ahead to unseat the incumbent. National polls this week also showed Obama with a growing lead, while Republican criticism of Romney has intensified.

Although the Republicans are expected to keep control of the House, an Obama win amid a lingering jobs crisis would – at least in the eyes of Democrats – validate some of the policies the president has adopted on the campaign trail and pressure Republicans to reach deals on them. Indeed, some leading Republicans have said an Obama victory would be “a referendum” for raising taxes on the country's highest earners, one of Obama's top priorities.

The power of post-election momentum was evident four years ago when Obama was swept into the White House in a wave of Democratic victories that allowed the party to secure the early passage of their controversial economic stimulus package and paved the way for the enactment of sweeping healthcare reforms the following year.

Although voter enthusiasm toward Obama waned, reelection would give the president new – if fleeting – leverage in his negotiations with GOP leaders over a range of issues.

#### No lame duck focus link—plan happens immediately—key to aff and neg ground—immediate implementation is the only basis for predictable research and preparation—AND—the lame duck session is a special session—means by their standard the plan would be done in 2013 post-the disad, or another immediate special session is fair game

#### Link inevitable—election spills-over to lame duck fights

Marilyn Geewak, NPR, 9/20/12, 'Fiscal Cliff' Scenarios Leave Economists On Edge, www.npr.org/2012/09/20/161442506/fiscal-cliff-scenarios-leave-economists-on-edge

But that's not the worst-case scenario. This is: Congress may not have time to do anything at all during the lame-duck session.

Why? Because this election season could bring major distractions, similar to those that followed the 2000 presidential election. That year's "hanging chad" drama in Florida turned into a massive time suck for political leaders. Florida officials spent weeks trying to count paper ballots to determine which presidential candidate had won that state's tie-breaking electoral votes.

Another tussle over ballots is possible this year, especially given the array of new state laws involving voter ID.

It's also possible in this tight presidential election that neither candidate may win enough electoral votes to clinch victory. Dozens of combinations of battleground-state outcomes could leave the race undecided. If no one wins, then the House would decide the election — not exactly a scenario for holding down partisanship on Capitol Hill.

And it's not just the presidential race that could spur demands for recounts. All of the House seats are up for grabs, as well as 33 Senate slots. With Congress so narrowly split, each disputed seat could inflame partisan rancor and make it harder to come up with compromises by New Year's Eve.

#### Not intrinsic

#### Obama pc collapses budget negotiations—2011 proves

The Hotline, 9/10/12, Slow and Steady Wins the Race, Lexis

Gaps in Obama's leadership contributed to the collapse of a "grand bargain" on spending and debt last year. with Obama "failing to cultivate congressional relationships that may have helped him break through GOP opposition, author Bob Woodward told ABC. Woodward: "President Clinton, President Reagan. And if you look at them, you can criticize them for lots of things. They by and large worked their will. On this, President Obama did not. Now, some people are going to say he was fighting a brick wall, the Republicans in the House and the Republicans in Congress. Others will say it's the president's job to figure out how to tear down that brick wall. In this case, he did not."

Asked if Obama "simply wasn't ready for the job of being president," Woodward responded: "I am not ducking this. I am weighing evidence, and there's evidence that he got on top a lot of things, he did a lot of things. And there's evidence that there are gaps. He did not fix this."

Woodward places "particular blame for the failure to reach a deal" with Obama, "writing that the seeds of discord were planted early in his administration." Woodward: "There's this divided-man quality to President Obama always. Initially he meets with the congressional leaders, he says you know, 'We're going to be accommodating, we're going to listen, we're going to talk, we're going to compromise.' But then they -- Republicans ask some questions and challenge him a little bit and he says 'Look I won. I'm in charge here.' And the Republicans feel totally isolated and ostracized. And this was the beginning of a war" (Klein, ABC, 9/10).

#### No Link—Plan doesn’t require legislation, or focus from Obama and Congress

#### House blocks

Bruce Bartlett, The New York Times, held senior policy roles in the Reagan and George H.W. Bush administrations and served on the staffs of Representatives Jack Kemp and Ron Paul, 10/2/12, The 'Fiscal Cliff' Opportunity, Lexis

Although it appears that the Republicans will retain control of the House while Democrats' prospects of continuing to have a Senate majority have improved, the majority margins are likely to narrow. This could be a particular problem in the House, where Representative John Boehner of Ohio, the speaker, has never had a firm hold on power because he is viewed with suspicion by the G.O.P.'s Tea Party wing.

The budget analyst Stan Collender speculates that Mr. Boehner will be on a short leash during the lame-duck session as the Tea Party tries to maintain influence after a disappointing election. This means that Mr. Boehner will have little scope to negotiate with Democrats on a compromise that would forestall the fiscal cliff, making it likely that the fiscal cliff measures will begin as scheduled.

The two primary sticking points are taxes and military spending. President Obama is insisting that the Bush tax cuts not be extended for those with incomes over $250,000. For them, the top tax rate would rise to 39.6 percent - what it was during the Clinton administration - from 35 percent. The administration would also like to raise the maximum tax rate on dividends and capital gains to 20 percent for upper-income taxpayers, from 15 percent currently.

Republicans are adamantly opposed to any increase in taxes for anyone, but especially the wealthy, whom they univer-sally view as "job creators," even if all they do is cash dividend checks on inherited stocks. But Republicans are even more concerned about impending cuts to military spending, which they agreed to last summer as part of the deal to raise the debt ceiling.

#### Links to CPs—even if CP solves controversy, CP process triggers focus links

#### No impact—at worst they’ll just punt the deadline

Reuters, 9/21/12, Lawmakers May Delay 'Fiscal Cliff' Deadlines, www.foxbusiness.com/2012/09/21/lawmakers-may-delay-fiscal-cliff-deadlines/

Slowly and quietly, the U.S. Congress may be arriving at a consensus on how to avoid falling off the "fiscal cliff" on December 31 - by simply putting off its own deadline for most of the major year-end budget and tax decisions. That approach would delay the day of reckoning while also allowing more time for compromise in a Congress that has battled for two years over how best to reduce huge budget deficits. No formal agreements have been reached, however, and turning a consensus into an actual deal that avoids jolting the markets or economy will depend on the results of the November 6 general election. The "cliff" refers to the year-end deadline for the expiration of hundreds of billions of dollars worth of tax cuts and the triggering of $109 billion in across-the-board spending cuts. The non-partisan Congressional Budget Office has said the scenario could throw the country into recession. Congress created the hazardous end-of-year deadline in August 2011 when it agreed to a deficit deal as a way out of a deadlock over raising the U.S. debt ceiling. In recent weeks, lawmakers of all political stripes, from conservative Republicans to liberal Democrats in the Senate and House of Representatives, have alluded to surprisingly similar hopes for the high-stakes "lame-duck" work session that will follow the November presidential and congressional elections. They would put aside the $109 billion in "automatic" across-the-board spending cuts that otherwise would hit military and domestic programs equally. They would make some new, possibly smaller down payments on deficit-reduction for the near-term. Then they would write a new deadline - maybe March 31 or June 30 - to come up with a grand, $4 trillion deficit-reduction program over 10 years; and devise a new method for forcing a divided Congress to act. The entire exercise would be aimed at finding a long-term fix for U.S. fiscal problems without the jolt of indiscriminate spending cuts and tax hikes that would occur under current law. RUNNING FOR COVER The threat of a possible recession after such blanket spending cuts now preoccupies Washington. Among the fearful are the big-company CEOs represented by the Business Roundtable, for example, and Ben Bernanke, the chairman of the U.S. Federal Reserve, who briefed members of Congress this week after declaring that "I don't think our tools are strong enough to offset the effects of a major fiscal shock" of the cliff. The most vocal Democrats and Republicans in Congress have turned the floors of the House and Senate into pre-election spin rooms as each side tries to pin the blame on the other. But a stream of ideas to delay the December 31 day of doom floats through Capitol Hill brainstorming sessions. \* Liberal Democrat Dick Durbin, the second-ranking Senate Democrat, has alluded to a six-month delay, coupled with a $40 billion to $50 billion deficit-reduction down payment for the first half of the year. \* Conservative Republican Senator Lindsey Graham has touted a "mini deal" in November or December to delay decisions through March. It would contain a $20 billion deficit cut. \* Senate Budget Committee Chairman Kent Conrad, a longtime Democratic deficit hawk, said the "optimum outcome" would give Congress six more months to work out details on revamping the tax code and big government programs like Social Security and Medicare.

#### DOD energy programs don’t link---conservative won’t oppose

Davenport 12

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

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

# korea

#### Solves asteroids—key to detect and deflect

ANI, 7

(Asian News International, “Lightweight lasers can eliminate Earth-striking asteroids,” 3/20, http://news.webindia123.com/news/articles/world/20070320/618874.html)

Researchers at the University of Alabama in Huntsville have claimed that a lightweight, space-based laser has the potential to eliminate dangerous asteroids posing a threat to Earth. According to says Richard Fork, the head of the Laser Science and Engineering Group at the university, the technique could detect and deflect space rock away. "Though the technology may take two decades or so to mature, this is something that is doable," Fork is quoted, as saying. One of the great advantages of using lasers is that their beams remain relatively tightly focused over long distances, allowing them to study asteroids from farther away than is currently possible. Previously, researchers had proposed several methods to save Earth from an asteroid impact. These included blowing it up with a nuclear bomb or putting a spacecraft beside it so the craft's gravity could tug the asteroid off course. But these solutions had their drawbacks. A laser, on the other hand, could give researchers an advance warning of the asteroid's likely composition and exact shape, which would help them figure out how to move it. In fact, the laser itself could also do the moving. If its short pulses were focused on a centimetre-sized spot on the asteroid, they would repeatedly pulverise material, ejecting tiny bits of space rock at 10 kilometres per second. This would function as the asteroid's propellant, pushing it into a different orbit - and safely away from Earth.

#### Extinction – magnitude overwhelms probability

Garshnek 2k

[ Victoria Garshnek, Global Human Futures Research Associates, David Morrison, NASA Ames Research Center, Frederick M. Burkle Jr, Division of Emergency Medicine, Department of Surgery, John A. Burns School of Medicine “ The mitigation, management, and survivability of asteroid/comet impact with Earth,” Space Policy 16 (2000) 213 - 222]

As far as we know, impacts are randomly distributed in time. Of the roughly 1500 (in number) kilometer-scale NEOs currently in Earth crossing orbits, some 30% have been found. Although we feel confident that Earth will not be struck in the foreseeable future by any of the known objects, we cannot say anything about the 70% that are not yet discovered. A comprehensive search has not yet been carried out and we must often speak in terms of probabilities. The chances of one of the undetected NEOs with a diameter of 1 km or more colliding with Earth in the next 50 years is about 1 in 20,000 [32]. The consequences would be catastrophic and global: there would be an impact winter, a collapse of agriculture and, possibly, the end of our civilization. However, chance is not really at work here. There either is or is not a NEO aimed to hit Earth in the next year or in the next century. There are those who believe that there is no escape from a large asteroid impact that would have global effects. A large object filling the atmosphere with dust, blotting sunlight, causing extreme cold and killing plants presents a complex emergency of unprecedented proportions. The disaster response problem can be immense. Smaller objects could cause continent wide destruction necessitating evacuation plans, which can be the ultimate logistic and public health nightmare. Staying in the projected area of devastation and being comfortable to the end does not "t with the human innate instinct to survive and most likely would not be the popular course of action. Hoping not to know about the impact coming is also not a solution. Other thoughts may center on hoping it does not hit in our lifetime \* let it be a problem for future generations to deal with. All of these viewpoints are missing the key issue: is human civilization worth saving? Is everything we have been a part of in our lifetime and historically evolved from worth preserving? It is the collapse of civilization \* the loss of thousands of years of the fruits of the arts, religion, and the sciences \* that we should fear the most. In his opening statement to the Congressional hearings on the NEO threat on 24 March 1993 [32], the late US Congressman George E. Brown Jr. stated: `If some day an asteroid does strike the Earth, killing not only the human race but millions of other species as well, and we could have prevented it but did not because of indecision, unbalanced priorities, imprecise risk definition and incomplete planning, then it will be the greatest abdication in all of human history not to use our gift of rational intellect and conscience to shepherd our own survival, and that of all life on Eartha.

#### Chinese ASAT attack triggers global nuclear war

Forden, 8

(PhD & Research Fellow-MIT, 1/10, “How China Loses the Coming Space War,” http://www.wired.com/dangerroom/2008/01/inside-the-ch-1/)

The United States has five satellites in geostationary orbit that detect missile launches using the heat released from their exhaust plumes. These satellites are primarily used to alert US nuclear forces to massive nuclear attacks on the homeland. However, in recent years, they have played an increasing role in conventional conflicts, such as both Gulf Wars, by cueing tactical missile defenses like the Patriot missile defense systems that gained fame in their engagements with Saddam’s SCUD missiles. Because of this new use, China might find it useful to attack them with ASATs. Since there are only five of them, China could destroy the entire constellation but at the cost of diverting some of the few available deep-space ASATs from other targets. Of course,

China would not have to attack all five but could limit its attack to the three that simultaneously view the Taiwan Straits area. If China did decide to destroy these early warning satellites, it would greatly reduce the area covered by US missile defenses in Taiwan against SCUD and longer range missiles. This is because the area covered by a theater missile defense system is highly dependent on the warning time it has; the greater the warning time, the more effective the missile defense system’s radar is. Thus a Patriot battery, which might ordinarily cover the capital of Taiwan, could be reduced to just defending the military base it was stationed at. Some analysts believe that China would gain a tremendous propaganda coup by having a single missile make it through US defenses and thus might consider this use of its deep-space ASATs highly worthwhile even if it could not increase the probability of destroying military targets. On the other hand,

China would run a tremendous risk of the US believing it was under a more general nuclear attack if China did destroy these early warning satellites. Throughout the history of the Cold War, the US has had a policy of only launching a “retaliatory” nuclear strike if an incoming attack is detected by both early warning satellites and radars. Without the space leg of the early warning system, the odds of the US misinterpreting some missile launch that it detected with radar as a nuclear attack would be greatly increased even if the US did not view the satellite destruction as a sufficiently threatening attack all by themselves. Such a misinterpretation is not without precedent. In 1995, Russia’s early warning radars viewed a NASA sounding rocket launch off the coast of Norway and flagged it as a possible Trident missile launch. Many analysts believe that Russia was able to not respond only because it had a constellation of functioning early warning satellites. Any Chinese attacks on US early warning satellites would risk both intentional and mistaken escalation of the conflict into a nuclear war without a clear military goal.

# 1ar

# ucs

#### SMR investment crucial to development of space lasers

McCall, 6

(Chair, USAF Scientific Advisory Board, “Spacecraft Bus Technoligies,” http://www.au.af.mil/au/awc/awcgate/vistas/stechch3.pdf)

All current spacecraft are either power limited or restricted in some measure by inadequate electrical power. Power limitations impose restrictions on the communications and propulsion subsystems and currently **make large space-based radars and space-based weapons relatively unfeasible**. A revolutionary change in capabilities will result from power technologies capable of providing large amounts of power onboard satellites. Large amounts of power will be enabling on spacecraft in the same sense that large amounts of random access memory have been enabling in personal computers. If power is not an issue, then previously hard applications become easy and new applications become possible. Evolutionary development of solar-array-based power technologies will see improvements to tens of kilowatts on satellites over the next decades. However, all solar collection systems in Earth orbit are limited by the solar constant of 1.4 kiloWatts per square meter. Large powers from solar collectors require large collection areas. For substantially larger powers (> 100 kW), several different types of technologies will have to be explored. Powers of this level will make large space-based radars, space-based directed energy weapons, and the use of high-performance electrically driven maneuvering technologies possible. **A natural technology to enable high power is nuclear power in space**; however, this technology has to date been considered unacceptable due to political and environmental limitations. Thus it is desirable to develop other technologies that may provide large power levels in space. In addition to continued development of **safe nuclear systems**, two other sources of continuous power in space that should be explored are the concepts of electrodynamic power-generating tethers and power beaming from one location to another (e.g., from space to space). The development of these and other technologies for high continuous power **will have a revolutionary effect and the Air Force should invest in these areas** as well as continuing to invest in solar collection technologies. Over the years, there have been several programs in nuclear powered spacecraft. NASA has been using Radioisotope Thermoelectric Generators (RTGs) for the interplanetary missions that generate a few tens of watts of power. Russia has flown nuclear reactors in space and BMDO has a joint program with the Russians (TOPAZ), under which the Defense department bought three of the reactors to do laboratory experiments. DoE had a program (SP 100) to use nuclear power in space and the Air Force had a nuclear propulsion program; these programs have been canceled. Nuclear power, however, remains one of the attractive alternatives in generating large amounts of power in space. To build a reactor for space applications has many challenging technical aspects including development of high-temperature lightweight materials, active cooling technologies, extremely radiation-hard and high-temperature electronics, and fail-safe system architectures. Setting the emotional issues of nuclear power aside, this technology offers a viable alternative for large amount of power in space. The Air Force should continue efforts towards **making a safe nuclear reactor in space a viable option**. Existing joint programs with Russia offer a low cost alternative and should be pursued.

# nordhaus

#### Nuclear technocracy’s key to solve

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

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

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

# ontology bad

#### Prior focus on ontology causes paralysis – having “good enough knowledge” is a sufficient condition for action

**Kratochwil**, professor of international relations – European University Institute, **‘8**

(Friedrich, “The Puzzles of Politics,” pg. 200-213)

The lesson seems clear. Even at the danger of “fuzzy boundaries”, when we deal with “practice” ( just as with the “pragmatic turn”), we would be well advised to rely on the use of the term rather than on its reference (pointing to some property of the object under study), in order to draw the bounds of sense and understand the meaning of the concept. My argument for the fruitful character of a pragmatic approach in IR, therefore, does not depend on a comprehensive mapping of the varieties of research in this area, nor on an arbitrary appropriation or exegesis of any specific and self-absorbed theoretical orientation. For this reason, in what follows, I will not provide a rigidly specified definition, nor will I refer exclusively to some prepackaged theoretical approach. Instead, I will sketch out the reasons for which a prag- matic orientation in social analysis seems to hold particular promise. These reasons pertain both to the more general area of knowledge appropriate for praxis and to the more specific types of investigation in the field. The follow- ing ten points are – without a claim to completeness – intended to engender some critical reflection on both areas.

Firstly, a pragmatic approach does not begin with objects or “things” (ontology), or with reason and method (epistemology), but with “acting” (prattein), thereby preventing some false starts. Since, **as historical beings placed in a specific situations, we do not have the luxury of deferring decisions until we have found the “truth”, we have to act and must do so always under time pressures and in the face of incomplete information.** Pre- cisely because the social world is characterised by strategic interactions, what a situation “is”, is hardly ever clear ex ante, because it is being “produced” by the actors and their interactions, and the multiple possibilities are rife with incentives for (dis)information. This puts a premium on quick diagnostic and cognitive shortcuts informing actors about the relevant features of the situ- ation, and on leaving an alternative open (“plan B”) in case of unexpected difficulties. Instead of relying on certainty and universal validity gained through abstraction and controlled experiments, we know that completeness and attentiveness to detail, rather than to generality, matter. To that extent, likening practical choices to simple “discoveries” of an already independently existing “reality” which discloses itself to an “observer” – or relying on optimal strategies – is somewhat heroic.

These points have been made vividly by “realists” such as Clausewitz in his controversy with von Bülow, in which he criticised the latter’s obsession with a strategic “science” (Paret et al. 1986). While Clausewitz has become an icon for realists, only a few of them (usually dubbed “old” realists) have taken seriously his warnings against the misplaced belief in the reliability and use- fulness of a “scientific” study of strategy. Instead, most of them, especially “neorealists” of various stripes, have embraced the “theory”-building based on the epistemological project as the via regia to the creation of knowledge. A pragmatist orientation would most certainly not endorse such a position.

Secondly, since acting in the social world often involves acting “for” some- one, special responsibilities arise that aggravate both the incompleteness of knowledge as well as its generality problem. Since we owe special care to those entrusted to us, for example, as teachers, doctors or lawyers, we cannot just rely on what is generally true, but have to pay special attention to the particular case. Aside from avoiding the foreclosure of options, we cannot refuse to act on the basis of incomplete information or insufficient know- ledge, and the necessary diagnostic will involve typification and comparison, reasoning by analogy rather than generalization or deduction. Leaving out the particularities of a case, be it a legal or medical one, in a mistaken effort to become “scientific” would be a fatal flaw. Moreover, there still remains the crucial element of “timing” – of knowing when to act. Students of crises have always pointed out the importance of this factor but, in attempts at building a general “theory” of international politics analogously to the natural sci- ences, such elements are neglected on the basis of the “continuity of nature” and the “large number” assumptions. Besides, “timing” seems to be quite recalcitrant to analytical treatment.

#### It causes academic regression and can’t explain things

**Owen 2** (David, professor of social and political philosophy and deputy director of the Centre for Philosophy and Value at the University of Southampton, “Re-orienting International Relations: On Pragmatism, Pluralism and Practical Reasoning”, Millennium - Journal of International Studies 2002 31: 653)

The first danger with the philosophical turn is that it has an inbuilt tendency to prioritise issues of ontology and epistemology over explanatory and/or interpretive power as if the latter two were merely a simple function of the former. But while the explanatory and/or interpretive power of a theoretical account is not wholly independent of its ontological and/or epistemological commitments (otherwise criticism of these features would not be a criticism that had any value), it is by no means clear that it is, in contrast, wholly dependent on these philosophical commitments. Thus, for example, one need not be sympathetic to rational choice theory to recognise that it can provide powerful accounts of certain kinds of problems, such as the tragedy of the commons in which dilemmas of collective action are foregrounded. It may, of course, be the case that the advocates of rational choice theory cannot give a good account of why this type of theory is powerful in accounting for this class of problems (i.e., how it is that the relevant actors come to exhibit features in these circumstances that approximate the assumptions of rational choice theory) and, if this is the case, it is a philosophical weakness—but this does not undermine the point that, for a certain class of problems, rational choice theory may provide the best account available to us. In other words, while the critical judgement of theoretical accounts in terms of their ontological and/or epistemological sophistication is one kind of critical judgement, it is not the only or even necessarily the most important kind.

The second danger run by the philosophical turn is that because prioritisation of ontology and epistemology promotes theory-construction from philosophical first principles, it cultivates a theory-driven rather than problem-driven approach to IR. Paraphrasing Ian Shapiro, the point can be put like this: since it is the case that there is always a plurality of possible true descriptions of a given action, event or phenomenon, the challenge is to decide which is the most apt in terms of getting a perspicuous grip on the action, event or phenomenon in question given the purposes of the inquiry; yet, from this standpoint, ‘theory-driven work is part of a reductionist program’ in that it ‘dictates always opting for the description that calls for the explanation that flows from the preferred model or theory’.5 The justification offered for this strategy rests on the mistaken belief that it is necessary for social science because general explanations are required to characterise the classes of phenomena studied in similar terms. However, as Shapiro points out, this is to misunderstand the enterprise of science since ‘whether there are general explanations for classes of phenomena is a question for social-scientific inquiry, not to be prejudged before conducting that inquiry’.6 Moreover, this strategy easily slips into the promotion of the pursuit of generality over that of empirical validity.

The third danger is that the preceding two combine to encourage the formation of a particular image of disciplinary debate in IR—what might be called (only slightly tongue in cheek) ‘the Highlander view’—namely, an image of warring theoretical approaches with each, despite occasional temporary tactical alliances, dedicated to the strategic achievement of sovereignty over the disciplinary field. It encourages this view because the turn to, and prioritisation of, ontology and epistemology stimulates the idea that there can only be one theoretical approach which gets things right, namely, the theoretical approach that gets its ontology and epistemology right. This image feeds back into IR exacerbating the first and second dangers, and so a potentially vicious circle arises.

#### That paralyzes the alt

Emmanuel **Levinas**, professor of philosophy, andPhilippe Nemo, professor of new philosophy, Ethics and Infinity, **‘85**, pg. 6-7

Are we not in need of still more precautions? Must we not step back from this question to raise another, to recognize the obvious circularity of ask­ing what isthe “What is . .?“ question? It seems to beg the question. Is our new suspicion, then, that Heidegger begs the question of metaphysics when he asks “What is poetry?” or “What is thinking?”? Yet his thought is insistently anti-metaphysical. Why, then, does he retain the metaphysical question par excellence? Aware of just such an objection, he pro­poses, against the vicious circle of the *petitio principi,* an alternative, productive circularity: hermeneutic questioning. To ask “What is. . .?“ does not partake of onto-theo-logy if one acknowledges (1) that the answer can never be fixed absolutely, but calls essen­tially, endlessly, for additional “What is . . .?“ ques­tions. Dialectical refinement here replaces vicious circularity. Further, beyond the openmindedness called for by dialectical refinement, hermeneutic questioning (2) insists on avoiding subjective impositions, on avoid­ing reading into rather than harkening to things. One must harken to the things themselves, ultimately to being, in a careful attunement to what is. But do the refinement and care of the herme­neutic question — which succeed in avoiding onto­theo-logy succeed in avoiding all viciousness? Certainly they convert a simple fallacy into a produc­tive inquiry, they open a path for thought. But is it not the case that however much refinement and care one brings to bear, to ask what something is leads to asking what something else is, and so on and so forth, ad infinitum*?* What is disturbing in this is not so much the infinity of interpretive depth, which has the virtue of escaping onto-theo-logy and remaining true to the way things are, to the phenomena, the coming to be and passing away of being. Rather, the problem lies in the influence the endlessly open horizon of such thinking exerts on the way of such thought. That is, the problem lies in what seems to be the very virtue of hermeneutic thought, namely, the doggedness of the “What is . . .?“ question, in its inability to escape itself, to escape being and essence.

# no impact

#### Prefer specificity – their totalizing account of human relationality is foundationless and erases alterity

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(Michael E, Confrontation with Modernity p. 258)

Much of Heidegger's critical account of metaphysics—its totalizing impulse, its foundationalism, its quest for complete control—is now widely shared. Many pragmatists, for example, despite important reservations, have argued that Heidegger's critique of foundationalism contributes to an appreciation of the limits of human knowledge and political power. For such pragmatists, inquiry, knowledge, and the institutions dependent upon that knowledge are always conditional in nature, open in principle to question and revision. As post-modernists and post-structuralists, they have defended Heidegger's deconstructive critique of the arrogant and totalizing dimension of Enlightenment faith in absolute rational foundations for science, philosophy, economics, psychology, and politics. Yet many pragmatists have also been wary of Heidegger's deconstructionism precisely because of its connection to his problematic interpretation of Western history and to his reactionary political vision. Consider, Joseph Margolis argues, that for Heidegger our only hope for salvation from the technological era lies in turning to the very source of our prodigal but dangerous ontologies. This is the key to Heidegger's extravagance.... The result is a peculiarly preposterous theory that entails that, however impressive it may be, very nearly the entire movement of Western philosophy from Plato to Nietzsche has gone ontologically astray and that Heidegger himself controls its permanent exposure. It is also what may be termed a "sly" theory, because its emphasis on the historicity of human existence and inquiry somehow manages to ignore the concrete history of actual existence and actual inquiry. Despite Heidegger's recognition of the historical character of human existence, his talk of the transcendent ontological dimension (*Ereignis*) which "gives" the epoch-shaping modes of beingness would, in Margolis's view, seem to be a transhistorical "source" for the historical—a groundless ground, a foundationless foundation, an abysmal origin not arising from the practical activity of humanity itself but "arriving" instead without warning, from "nowhere.”

# tech thought inevitable

#### Technological thought has been socialized, internalized, and can’t be eradicated

**Leach 3**, date page modified (Neil, Professor at the University of Southern California, “Forget Heidegger”, August 15, <http://www.china-designer.com/magazine/leach/txt1.htm>)

Adorno's further example of the car reveals how the technological has come to colonise our everyday lives not as standing reserve, but as something to which symbolic intention is always already being 'attached'. The point here is that we have to understand that our engagement with technology involves a moment of 'proprioception'. Technology may come to operate as a form of 'prosthesis' to the human body that is appropriated such that it becomes part of the motility of the body. In driving a car we come to navigate the road through that car. As such, the car as an item of technology is not divorced - alienated - from the body. Indeed it becomes a form of extension to that body. What I am arguing here is not some simplistic manifesto for cyborgs, claiming that human beings can become part human and part machine. Rather I am trying to tease out the logic of mimesis itself. For according to this logic, human beings have absorbed technology at an unconscious level, such that they have come to operate through technology, as though by way of some tele-kinesis.

Not only this, but technology may actually influence the way that human beings think. It may itself affect our consciousness. Let us take the example of the computer. For, if as Walter Benjamin once argued, the factory worker in the modernist age comes to absorb the jolting, jarring repetitive action of the machine, such that those movements are appropriated into the worker's own behaviour, so too people today have absorbed the thinking and fluid circuitry behind the computer screen. New conditions breed new ways of thinking. As Douglas Rushkoff observes, a new computer generation is emerging. The computer kids of today come to behave like their computers. They identify with them, play with them, and mimic their operations. Analogical reasoning is out. Non-linear, multiple-layered thinking is in - Deleuzian surfing. Fractals, rhizomes and clones, fluidity and flux - these are the buzz words of this new generation. In such a context, those who argue against the use of the computer in the contemporary design studio are failing to address the concrete ontological reality of life today, and are doing no service to the students, for whom knowledge of computer has become a 'given' within the contemporary office. It may be that the still prevalent antipathy towards digital technology is merely a form of 'denial'. As in the case of homophobics, who often deny their latent homosexuality, critics of technology may be repressing a secret fascination with technology. An individual 'in denial' may be fascinated by some personal psychic obsession, but, not wishing to acknowledge it, will project that obsession on to some external object, and then criticise it. But whether this antipathy towards digital technology is a form of repressed fascination or not, it is clearly out of place in what has become a highly digitalised world.

This is not to say that the computer should be accepted unproblematically within the studio. Indeed the lessons of those design schools that have accepted the computer wholesale would seem to indicate that the concerns expressed in The Anaesthetics of Architecture about the potential aestheticisation and hence anaesthetisation of social issues are borne out only too clearly in such contexts. Rather it is a call for a self-critical, theoretically informed engagement with such realms. Theory may be unable in itself to combat the potential problems of aestheticisation. Yet it may provide the first crucial step. Once a problem has been exposed, one is no longer trapped by that problem.

The consequences are all too obvious. Not only have we accepted technology as an essential part of our everyday life, such that the distinction once posed between techné and technology seems no longer valid, but our whole existence has become conditioned by technology. In this new digital age, as Sarah Chaplin argues, we have adopted a form of cybervisuality. An important factor, then, is our interface with that technology. For technology may take many forms. Here the question of design becomes crucial. The message of mimesis is not that human beings will adapt to anything, so that design is unimportant, but precisely the opposite. Design becomes an important mechanism for making people feel at one with their world. This relates not simply to whether a piece of technology is itself aesthetically pleasing - as is the case, say, with the iMac computer - , but in the context of digital technology it relates also to the user interface - to software programming and its compatibility with human modes of operation. Far from engendering alienation, well designed technology has the capacity to overcome alienation.

There was a time when Heideggerian thought made a substantial and noteworthy contribution to architectural culture in challenging the spirit of positivism that was once so pervasive. But now Heideggerian thinking must not itself go unchallenged, in that it threatens to install itself as a set of fixed values out of tune with the fluidity and flux of contemporary society. And while some would criticise postmodern thought for being relativistic in accommodating plurality and difference, and questioning the ground on which any particular statement is made, the true relativism lies surely in a tradition that forecloses even the possibility of even asking these questions, by doggedly adhering to an out of date set of values, and by failing to engage substantively with any critical discourse.

In an increasingly digital world, it is time, it would seem, to adopt a more flexible and tolerant attitude towards digital technology. It is time to break free from the shackles of the past. It is time, perhaps, to forget Heidegger.