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### Plan

#### Plan --- The United States federal government should obtain electricity from small modular reactors for mission critical military installations in the United States.

### Advantage

#### Advantage 1 --- Hegemony

#### Cyber-attack’s coming---actors are probing US grid weaknesses.

**Reed 10/11** (John, Reports on the frontiers of cyber war and the latest in military technology for Killer Apps at Foreign Policy, "U.S. energy companies victims of potentially destructive cyber intrusions", 2012)

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

#### These attacks jeopardize mission critical DoD military operations.

**Robitaille 12** (George, Department of Army Civilian & US Army War College, Small Modular Reactors: The Army’s Secure Source of Energy?, March, 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.

#### The plan solves grid collapse---SMR’s make bases resilient and deter attacks---they prevent nuclear retaliation.

Andres 11 (\*Richard B. – Professor of National Security Strategy at the National War College and a Senior Fellow and Energy and Environmental Security and Policy Chair in the Center for Strategic Research, Institute for National Strategic Studies, at the National Defense University, \*\*Hanna L. Breetz – Doctoral candidate in the Department of Political Science at The Massachusetts Institute of Technology, *Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications*, Strategic Forum, National Defense University, Institute for National Strategic Studies, February 2011, http://www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf)

Small reactors and energy Security The DOD interest in small reactors derives largely from problems with base and logistics vulnerability. Over the last few years, the Services have begun to reexamine virtually every aspect of how they generate and use en- ergy with an eye toward cutting costs, decreasing carbon emissions, and reducing energy-related vulnerabilities. These actions have resulted in programs that have signif- icantly reduced DOD energy consumption and green- house 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 re- port sponsored by the Department of Homeland Secu- rity suggests that a coordinated cyber attack 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 func- tion 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 black- out could **escalate to nuclear war**. America’s current opponents, however, may not share this fear or be deterred by this possibility. In 2008, the Defense Science Board stressed that DOD should mitigate the electrical grid’s vulnerabilities by turning military installations into “islands” of energy self-sufficiency.10 The department has made ef- forts 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 renew- ables, 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 de- mands 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.

#### Cyber wars are the highest probability scenario for a nuclear use.

**Lawson 9** (Sean, Assistant professor in the Department of Communication at the University of Utah, Cross-Domain Response to Cyber Attacks and the Threat of Conflict Escalation, May 13th 2009, http://www.seanlawson.net/?p=477)

Introduction

At a time when it seems impossible to avoid the seemingly growing hysteria over the threat of cyber war,[1] network security expert Marcus Ranum delivered a refreshing talk recently, “The Problem with Cyber War,” that took a critical look at a number of the assumptions underlying contemporary cybersecurity discourse in the United States. He addressed one issue in partiuclar that I would like to riff on here, the issue of conflict escalation–i.e. the possibility that offensive use of cyber attacks could escalate to the use of physical force. As I will show, his concerns are entirely legitimate as current U.S. military cyber doctrine assumes the possibility of what I call “**cross-domain responses**” to cyberattacks.

Backing Your Adversary (Mentally) into a Corner

Based on the premise that completely blinding a potential adversary is a good indicator to that adversary that an attack is iminent, Ranum has argued that

“The best thing that you could possibly do if you want to start **World War III** is launch a cyber attack. [...] When people talk about cyber war like it’s a practical thing, what they’re really doing is messing with the OK button for starting World War III. We need to get them to sit the f-k down and shut the f-k up.” [2]

He is making a point similar to one that I have made in the past: Taking away an adversary’s ability to make rational decisions could backfire. [3] For example, Gregory Witol cautions that

“attacking the decision makerÃ¢â‚¬â„¢s ability to perform rational calculations may cause more problems than it hopes to resolveÃ¢â‚¬Â¦ Removing the capacity for rational action may result in completely unforeseen consequences, including longer and bloodier battles than may otherwise have been.” [4]

Ã¯Â»Â¿Cross-Domain Response

So, from a theoretical standpoint, I think his concerns are well founded. But the current state of U.S. policy may be cause for even greater concern. It’s not just worrisome that a hypothetical blinding attack via cyberspace could send a signal of imminent attack and therefore trigger an irrational response from the adversary. What is also cause for concern is that current U.S. policy indicates that “kinetic attacks” (i.e. physical use of force) are seen as potentially legitimate responses to cyber attacks. Most worrisome is that current U.S. policy implies that a **nuclear response** is possible, something that policy makers have not denied in recent press reports.

The reason, in part, is that the U.S. defense community has increasingly come to see cyberspace as a “domain of warfare” equivalent to air, land, sea, and space. The definition of cyberspace as its own domain of warfare helps in its own right to blur the online/offline, physical-space/cyberspace boundary. But thinking logically about the potential consequences of this framing leads to some disconcerting conclusions.

If cyberspace is a domain of warfare, then it becomes possible to define “cyber attacks” (whatever those may be said to entail) as acts of war. But what happens if the U.S. is attacked in any of the other domains? It retaliates. But it usually does not respond only within the domain in which it was attacked. Rather, responses are typically “cross-domain responses”–i.e. a massive bombing on U.S. soil or vital U.S. interests abroad (e.g. think 9/11 or Pearl Harbor) might lead to air strikes against the attacker. Even more likely given a U.S. military “way of warfare” that emphasizes multidimensional, “joint” operations is a massive conventional (i.e. non-nuclear) response against the attacker in all domains (air, land, sea, space), simultaneously.

The possibility of “kinetic action” in response to cyber attack, or as part of offensive U.S. cyber operations, is part of the current (2006) National Military Strategy for Cyberspace Operations [5]:

Of course, the possibility that a cyber attack on the U.S. could lead to a U.S. nuclear reply constitutes possibly the ultimate in “cross-domain response.” And while this may seem far fetched, it has not been ruled out by U.S. defense policy makers and is, in fact, implied in current U.S. **defense policy documents**. From the National Military Strategy of the United States (2004):

“The term WMD/E relates to a broad range of adversary capabilities that pose potentially devastating impacts. WMD/E includes chemical, biological, radiological, nuclear, and enhanced high explosive weapons as well as other, more asymmetrical ‘weapons’. They may rely more on disruptive impact than destructive kinetic effects. For example, cyber attacks on US commercial information systems or attacks against transportation networks may have a greater economic or psychological effect than a relatively small release of a lethal agent.” [6]

The authors of a 2009 National Academies of Science report on cyberwarfare respond to this by saying,

“Coupled with the declaratory policy on nuclear weapons described earlier, this statement implies that the United States will regard certain kinds of cyberattacks against the United States as being in the same category as nuclear, biological, and chemical weapons, and thus that a nuclear response to certain kinds of cyberattacks (namely, cyberattacks with devastating impacts) may be possible. It also sets a relevant scale–a cyberattack that has an impact larger than that associated with a relatively small release of a lethal agent is regarded with the same or greater seriousness.” [7]

Asked by the New York Times to comment on this, U.S. defense officials would not deny that nuclear retaliation remains an option for response to a massive cyberattack:

“Pentagon and military officials confirmed that the United States reserved the option to respond in any way it chooses to punish an adversary responsible for a catastrophic cyberattack. While the options could include the use of nuclear weapons, officials said, such an extreme counterattack was hardly the most likely response.” [8] The rationale for this policy:

“Thus, the United States never declared that it would be bound to respond to a Soviet and Warsaw Pact conventional invasion with only American and NATO conventional forces. The fear of escalating to a nuclear conflict was viewed as a pillar of stability and is credited with helping deter the larger Soviet-led conventional force throughout the cold war. Introducing the possibility of a nuclear response to a catastrophic cyberattack would be expected to serve the same purpose.” [9]

Non-unique, Dangerous, and In-credible?

There are a couple of interesting things to note in response. First is the development of a new acronym, WMD/E (weapons of mass destruction or effect). Again, this acronym indicates a weakening of the requirement of physical impacts. In this new definition, mass effects that are not necessarily physical, nor necessarily destructive, but possibly only disruptive economically or even psychologically (think “shock and awe”) are seen as equivalent to WMD. This new emphasis on effects, disruption, and psychology reflects both contemporary, but also long-held beliefs within the U.S. defense community. It reflects current thinking in U.S. military theory, in which it is said that U.S. forces should be able to “mass fires” and “mass effects” without having to physically “mass forces.” There is a sliding scale in which the physical (often referred to as

the “kinetic”) gradually retreats–i.e. massed forces are most physical; massed fire is less physical (for the U.S. anyway); and massed effects are the least physical, having as the ultimate goal Sun Tzu’s “pinnacle of excellence,” winning without fighting.

But the emphasis on disruption and psychology in WMD/E has also been a key component of much of 20th century military thought in the West. Industrial theories of warfare in the early 20th century posited that industrial societies were increasingly interdependent and reliant upon mass production, transportation, and consumption of material goods. Both industrial societies and the material links that held them together, as well as industrial people and their own internal linkages (i.e. nerves), were seen as increasingly fragile and prone to disruption via attack with the latest industrial weapons: airplanes and tanks. Once interdependent and fragile industrial societies were hopelessly disrupted via attack by the very weapons they themselves created, the nerves of modern, industrial men and women would be shattered, leading to moral and mental defeat and a loss of will to fight. Current thinking about the possible dangers of cyber attack upon the U.S. are based on the same basic premises: technologically dependent and therefore fragile societies populated by masses of people sensitive to any disruption in expected standards of living are easy targets. Ultimately, however, a number of researchers have pointed out the pseudo-psychological, pseudo-sociological, and a-historical (not to mention non-unique) nature of these assumptions. [10] Others have pointed out that these assumptions did not turn out to be true during WWII strategic bombing campaigns, that modern, industrial societies and populations were far more resilient than military theorists had assumed. [11] Finally, even some military theorists have questioned the assumptions behind cyber war, especially when assumptions about our own technology dependence-induced societal fragility (dubious on their own) are applied to other societies, especially non-Western societies (even more dubious). [12]

Finally, where deterrence is concerned, it is important to remember that a deterrent has to be credible to be effective. True, the U.S. retained nuclear weapons as a deterrent during the Cold War. But, from the 1950s through the 1980s, there was increasing doubt among U.S. planners regarding the credibility of U.S. nuclear deterrence via the threat of “massive retaliation.” As early as the 1950s it was becoming clear that the U.S. would be reluctant at best to actually follow through on its threat of massive retaliation. Unfortunately, most money during that period had gone into building up the nuclear arsenal; conventional weapons had been marginalized. Thus, the U.S. had built a force it was likely never to use. So, the 1960s, 1970s, and 1980s saw the development of concepts like “flexible response” and more emphasis on building up conventional forces. This was the big story of the 1980s and the “Reagan build-up” (not “Star Wars”). Realizing that, after a decade of distraction in Vietnam, it was back in a position vis-a-viz the Soviets in Europe in which it would have to rely on nuclear weapons to offset its own weakness in conventional forces, a position that could lead only to blackmail or holocaust, the U.S. moved to create stronger conventional forces. [13] Thus, the question where cyber war is concerned:

If it was in-credible that the U.S. would actually follow through with massive retaliation after a Soviet attack on the U.S. or Western Europe, is it really credible to say that the U.S. would respond with nuclear weapons to a cyber attack, no matter how disruptive or destructive?

Beyond credibility, deterrence makes many other assumptions that are problematic in the cyber war context. It assumes an adversary capable of being deterred. Can most of those who would perpetrate a cyber attack be deterred? Will al-Qa’ida be deterred? How about a band of nationalistic or even just thrill-seeker, bandwagon hackers for hire? Second, it assumes clear lines of **command and control**. Sure, some hacker groups might be funded and assisted to a great degree by states. But ultimately, even cyber war theorists will admit that it is doubtful that states have complete control over their armies of hacker mercenaries. How will deterrence play out in this kind of scenario?

#### And attacks collapse military war fighting capability.

**Loudermilk 11** (Micah, Research Associate for the Energy & Environmental Security Policy program with the Institute for National Strategic Studies at National Defense University, Small Nuclear Reactors: Enabling Energy Security for Warfighters, Small Wars Journal, March 27th 2011, http://smallwarsjournal.com/blog/small-nuclear-reactors-enabling-energy-security-for-warfighters)

Last month, the Institute for National Strategic Studies at National Defense University released a report entitled Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications. Authored by Dr. Richard Andres of the National War College and Hanna Breetz from Harvard University, the paper analyzes the potential for the Department of Defense to incorporate small reactor technology on its domestic military bases and in forward operating locations. According to Andres and Breetz, the reactors have the ability to solve two critical vulnerabilities in the military's mission: the dependence of domestic bases on the civilian electrical grid and the challenge of supplying ample fuel to troops in the field. Though considerable obstacles would accompany such a move -- which the authors openly admit -- the benefits are significant enough to make the idea merit serious consideration. At its heart, a discussion about military uses of small nuclear reactors is really a conversation about securing the nation's war fighting capabilities. Although the point that energy security **is** national security has become almost redundant -- quoted endlessly in government reports, think tank papers, and the like -- it is repeated for good reason. Especially on the domestic front, the need for energy security on military bases is often overlooked. There is no hostile territory in the United States, no need for fuel convoys to constantly supply bases with fuel, and no enemy combatants. However, while bases and energy supplies are not directly vulnerable, the civilian electrical grid on which they depend for 99% of their energy use is -- and that makes domestic installations highly insecure. The U.S. grid, though a technological marvel, is extremely old, brittle, and susceptible to a wide variety of problems that can result in power outages -- the 2003 blackout throughout the Northeast United States is a prime example of this. In the past, these issues were largely limited to accidents including natural disasters or malfunctions, however today, intentional threats such as cyber attacks represent a very real and growing threat to the grid. Advances in U.S. military technology have further increased the risk that a grid blackout poses to the nation's military assets. As pointed out by the Defense Science Board, **critical missions** including national strategic awareness and national command authorities depend on the national transmission grid. Additionally, capabilities vital to troops in the field -- including drones and satellite intelligence/reconnaissance -- are lodged at bases within the United States and their loss due to a blackout would **impair the ability** of troops to operate in forward operating areas. Recognition of these facts led the Defense Science Board to recommend "islanding" U.S. military installations to mitigate the electrical grid's vulnerabilities. Although DOD has undertaken a wide array of energy efficiency programs and sought to construct renewable energy facilities on bases, these endeavors will fall far short of the desired goals and still leave bases unable to function in the event of long-term outages. As the NDU report argues though, small nuclear reactors have the potential to alleviate domestic base grid vulnerabilities. With a capacity of anywhere between 25 and 300 megawatts, small reactors possess sufficient generation capabilities to power any military installation, and most likely some critical services in the areas surrounding bases, should a blackout occur. Moreover, making bases resilient to civilian power outages would reduce the incentive for an opponent to disrupt the grid in the event of a conflict as military capabilities would be unaffected. Military bases are also secure locations, reducing the associated fears that would surely arise from the distribution of reactors across the country. Furthermore, small nuclear reactors, by design, are significantly safer than prior generations of reactors due to passive safety features, simplified designs, sealed reactor cores, and lower operational requirements.

#### Conventional wars are inevitable --- ineffectiveness leads to major power aggression and violent competition.

**Horowitz 9** (Michael C. Horowitz and Dan A. Shalmon, Professor of Political Science @ University of Pennsylvania & Senior Analyst @ Lincoln Group, LLC. The Future of War and American Military Strategy, Orbis, Spring 2009)

It is important to recognize at the outset two key points about United States strategy and the potential costs and benefits for the United States in a changing security environment. First, the United States is very likely to remain fully engaged in global affairs. Advocates of restraint or global withdrawal, while popular in some segments of academia, remain on the **margins** of policy debates in Washington D.C. This could always change, of course. However, at present, **it is a given** that the United States will define its interests globally and pursue a strategy that requires capable military forces able to project power around the world. Because ‘‘indirect’’ counter-strategies are the rational choice for actors facing a strong state’s power projection, irregular/asymmetric threats are inevitable given America’s role in the global order.24 Second, the **worst-case scenario** is a loss of U.S. conventional superiority. Losing military control of the sea and the air, ‘‘the global commons,’’25 would render American global strategy **outmoded in an instant**. The idea that the United States must improve its capacity to fight counterinsurgency operations presumes a need to do so beyond defending the homeland and that the United States will have the capacity to intervene in future conflicts around the world. However, while it seems unlikely at present, what if developments in warfare cut down and then eliminated the conventional military superiority of the United States? The loss of conventional military superiority by the United States would probably make the current strategic environment **look like a picnic**.26 For example, currently a Marine unit deploying to Afghanistan or Iraq focuses most on the post-deployment battlefield tasks. However, imagine a world where commanders and soldiers, like their World War II forbears, must fear being sunk on a transport ship or shot out of the sky on the way over, or being targeted by electronic, nanotechnological, or directed energy or precision guided munitions when preparing to search a village for insurgents.27 In such a strategic environment, overseas deployments to win hearts and minds in a low intensity war or wipe out radical jihadi groups would likely—and logically— take a backseat to more ‘‘traditional’’ concerns: convoys, tank battles, air and coastal defenses, and crash programs to build a new generation of naval and air weapons to take back the seas and skies. Meanwhile, in the interim, the United States homeland would be more at risk than at any point since the World War II—arguably more threatened than in its entire history. What John Mearsheimer has called the ‘‘stopping power of water’’ previously functioned to shield the United States, with its oceanic buffers to the east and west, from existential threats. However, in the information age and if the United States no longer controls the waterways of the world, water may not be enough. A world without American conventional military superiority would also **encourage aggression** by regional actors eager to settle scores and take advantage of the fact that the United States could no longer destroy their military forces at a low cost, to say nothing of the global dangers inherent in the **competition among major powers** that could result. The latter scenario is the worst case and it bears mentioning only because it should inform the framework in which any debate about defense strategy occurs. Pg. 307-308

#### Hegemony solves nuke war and extinction.

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It is worth first examining the larger picture: We live in a time of arguably the greatest structural change in the global order yet endured, with this historical moment's most amazing feature being its relative and absolute lack of mass violence. That is something to consider when Americans contemplate military intervention in Libya, because if we do take the step to prevent larger-scale killing by engaging in some killing of our own, we will not be adding to some fantastically imagined global death count stemming from the ongoing "megalomania" and "evil" of American "empire." We'll be engaging in the same sort of system-administering activity that has marked our stunningly successful stewardship of global order since World War II. Let me be more blunt: As the guardian of globalization, the U.S. military has been the greatest force for peace the world has ever known. Had America been removed from the global dynamics that governed the 20th century, the mass murder never would have ended. Indeed, it's entirely conceivable there would now be no identifiable human civilization left, once nuclear weapons entered the killing equation. But the world did not keep sliding down that path of perpetual war. Instead, America stepped up and changed everything by ushering in our now-perpetual great-power peace. We introduced the international liberal trade order known as globalization and played loyal Leviathan over its spread. What resulted was the collapse of empires, an explosion of democracy, the persistent spread of human rights, the liberation of women, the doubling of life expectancy, a roughly 10-fold increase in adjusted global GDP and a profound and persistent reduction in battle deaths from state-based conflicts. That is what American "hubris" actually delivered. Please remember that the next time some TV pundit sells you the image of "unbridled" American military power as the cause of global disorder instead of its cure. With self-deprecation bordering on self-loathing, we now imagine a post-American world that is anything but. Just watch who scatters and who steps up as the Facebook revolutions erupt across the Arab world. While we might imagine ourselves the status quo power, we remain the world's most vigorously revisionist force. ¶ As for the sheer "evil" that is our military-industrial complex, again, let's examine what the world looked like before that establishment reared its ugly head. The last great period of global structural change was the first half of the 20th century, a period that saw a death toll of about 100 million across two world wars. That comes to an average of 2 million deaths a year in a world of approximately 2 billion souls. Today, with far more comprehensive worldwide reporting, researchers report an average of less than 100,000 battle deaths annually in a world fast approaching 7 billion people. Though admittedly crude, these calculations suggest a 90 percent absolute drop and a 99 percent relative drop in deaths due to war. We are clearly headed for a world order characterized by multipolarity, something the American-birthed system was designed to both encourage and accommodate. But given how things turned out the last time we collectively faced such a fluid structure, we would do well to keep U.S. power, in all of its forms, deeply embedded in the geometry to come.¶ To continue the historical survey, after salvaging Western Europe from its half-century of civil war, the U.S. emerged as the progenitor of a new, far more just form of globalization -- one based on actual free trade rather than colonialism. America then successfully replicated globalization further in East Asia over the second half of the 20th century, setting the stage for the Pacific Century now unfolding.

#### Decline causes great-power war, collapses trade and spreads economic nationalism.

Zhang & Shi 11 – Yuhan Zhang, researcher at the Carnegie Endowment for International Peace; Lin Shi, Columbia University, independent consultant for the Eurasia Group and consultant for the World Bank, January 22, 2011, “America’s decline: A harbinger of conflict and rivalry,” East Asia Forum, online: http://www.eastasiaforum.org/2011/01/22/americas-decline-a-harbinger-of-conflict-and-rivalry/

Over the past two decades, no other state has had the ability to seriously challenge the US military. Under these circumstances, motivated by both opportunity and fear, many actors have bandwagoned with US hegemony and accepted a subordinate role. Canada, most of Western Europe, India, Japan, South Korea, Australia, Singapore and the Philippines have all joined the US, creating a status quo that has tended to mute great power conflicts. ¶ However, as the hegemony that drew these powers together withers, so will the pulling power behind the US alliance. The result will be an international order where power is more diffuse, American interests and influence can be more readily challenged, and conflicts or wars may be harder to avoid.¶ As history attests, power decline and redistribution result in military confrontation. For example, in the late 19th century America’s emergence as a regional power saw it launch its first overseas war of conquest towards Spain. By the turn of the 20th century, accompanying the increase in US power and waning of British power, the American Navy had begun to challenge the notion that Britain ‘rules the waves.’ Such a notion would eventually see the US attain the status of sole guardians of the Western Hemisphere’s security to become the order-creating Leviathan shaping the international system with democracy and rule of law.¶ Defining this US-centred system are three key characteristics: enforcement of property rights, constraints on the actions of powerful individuals and groups and some degree of equal opportunities for broad segments of society. As a result of such political stability, free markets, liberal trade and flexible financial mechanisms have appeared. And, with this, many countries have sought opportunities to enter this system, proliferating stable and cooperative relations.¶ However, what will happen to these advances as America’s influence declines? Given that America’s authority, although sullied at times, has benefited people across much of Latin America, Central and Eastern Europe, the Balkans, as well as parts of Africa and, quite extensively, Asia, the answer to this question could affect global society in a profoundly detrimental way.¶ Public imagination and academia have anticipated that a post-hegemonic world would return to the problems of the 1930s: regional blocs, trade conflicts and strategic rivalry. Furthermore, multilateral institutions such as the IMF, the World Bank or the WTO might give way to regional organisations.¶ For example, Europe and East Asia would each step forward to fill the vacuum left by Washington’s withering leadership to pursue their own visions of regional political and economic orders. Free markets would become more politicised — and, well, less free — and major powers would compete for supremacy.¶ Additionally, such power plays have historically possessed a zero-sum element. In the late 1960s and 1970s, US economic power declined relative to the rise of the Japanese and Western European economies, with the US dollar also becoming less attractive. And, as American power eroded, so did international regimes (such as the Bretton Woods System in 1973).¶ A world without American hegemony is one where great power wars re-emerge, the liberal international system is supplanted by an authoritarian one, and trade protectionism devolves into restrictive, anti-globalisation barriers. This, at least, is one possibility we can forecast in a future that will inevitably be devoid of unrivalled US primacy.

#### Great power war causes extinction

Chisholm 5 (Paul K. Chisholm, foreign policy and international relations scholar based in Kenya, holds a University Degree in Sociology and Diploma in Human Resources, Terrorism, the Threat in Perspective and Great Power Conflict, Free World Syndicate, April, 2005, http://www.synd.org/opinion-columns-chisholm/terrorism.html)

We've heard much about terrorism since the 9/11 attacks. It has become an issue at the forefront of foreign policy and the mainstream media. The danger is no doubt real, the threat to be taken seriously. However, looking at the big picture, we should keep terrorism in perspective and perhaps have a look at more traditional threats to world peace - namely conflict between the great powers.

It is a matter of some speculation the damage terrorists could inflict on the western democracies. The worst case scenario being an attack with weapons of mass destruction on a major urban center. A reasonable estimate would place the death toll running from tens of thousands to perhaps a million with accompanying destruction/disruption of domestic infrastructure. The panic would no doubt exceed the actual damage.

The ability of terrorist groups to effectively deliver weapons of mass destruction is open to debate. Chemical and biological weapons, while lethal and having great psychological impact may not be able to inflict the kind of mass damage many perceive. Nuclear weapons are the only available that can offer a guarantee of mass destruction. To obtain, deliver and detonate one is no easy task.

As frightening as such scenarios are, actual damage would be limited to a city or relatively small geographic area. Simultaneous attacks on several cities with weapons of mass destruction are beyond the reach of international terrorist organizations, especially in the heightened security of the post 9/11 era.

Terrorism is usually discussed as an unprecedented threat to western civilization. Those of us who grew up during the cold war were presented with a far more frightening threat to world civilization - the clash to two nuclear armed superpowers.

Government officials, military leaders, foreign policy experts and journalists of the cold war era, right up until its end, presented the following scenario:

A nuclear war would begin and end with a conventional attack on East Germany lasting approximately 30 minutes. This would be followed by nuclear strikes against major targets in both the United States and Soviet Union and other strategic locations. Accounting for delivery time the world, as we knew it, would end in approximately 90 minutes. To add insult to injury nuclear winter would follow rendering the Earth uninhabitable.

This was made possible, as anti-nuclear protesters told us, by each superpower possessing enough nuclear weapons to destroy the world four times over.

Coming back to the present, we are in a transitional stage brought about by 9/11. For the duration of the 1990s the potential for great power conflict was considerably less than during the cold war. Even the last few years have seen little real potential for a major war between superpowers.

It was the 9/11 attacks that prompted a more aggressive foreign policy by the United States, soon to be imitated by other nations that have put us back on the path of the potential for major conflict.

The immediate focus after the attacks was on international terrorist organizations. We then began to hear about rogue states for which the Bush Doctrine's most famous principle began to gain attention - pre-emptive strikes. The use of such strikes in the Bush Doctrine was originally reserved only for the United States. Many observers at the time warned that a foreign policy Pandora's box had been opened.

The concept of pre-emptive strikes has now been adopted as a legitimate response by Russia. Putin has stated he would strike terrorist organizations anywhere in the world to protect the Russian homeland. Ask yourself what would happen should such a strike run counter to the interests of the United States or her allies?

Another corner stone of the Bush Doctrine states that no foreign power should approach or equal the United States military capability. US military dominance is a concern of Russia and China. Both nations have been moving to establish closer ties and expand their military capability.

Russia has announced they are developing a new generation of nuclear weapons. They are also negotiating increased arms sales to China and are cross training their military. The two countries have also signed agreements offering support for suppression of separatist movements within their borders. China has recently passed a law authorizing force against Taiwan should the island try for independence. With Europe considering lifting the ban of weapons sales to China there is potential for real trouble.

We're not in another cold war yet, but we're moving back into the era of great power politics. Russia is the wild card, sitting on the fence between a western or eastern orientation.

A look at the globe will tell you there is potential for major war, between India and Pakistan, whose relations always run tense; the growing prominence of Asian nations China and Korea could bring tension with Japan and finally in the next decade we'll see American interests threatened by great power alliance.

Terrorism kills people and disrupts civilian life on a limited scale. It doesn't lead to the fall of nations and wide spread annihilation. Only great power conflict can do that. Should we not refocus our attention and foreign policy now? Diplomacy should be redirected to head off a full scale arms race and potential conflicts between nuclear parties.

#### The best statistical studies prove the relationship between hegemony and peace.

Owen 11 John M. Owen Professor of Politics at University of Virginia PhD from Harvard "DON’T DISCOUNT HEGEMONY" Feb 11 www.cato-unbound.org/2011/02/11/john-owen/dont-discount-hegemony/

Andrew Mack and his colleagues at the Human Security Report Project are to be congratulated. Not only do they present a study with a striking conclusion, driven by data, free of theoretical or ideological bias, but they also do something quite unfashionable: they bear good news. Social scientists really are not supposed to do that. Our job is, if not to be Malthusians, then at least to point out disturbing trends, looming catastrophes, and the imbecility and mendacity of policy makers. And then it is to say why, if people listen to us, things will get better. We do this as if our careers depended upon it, and perhaps they do; for if all is going to be well, what need then for us?¶ Our colleagues at Simon Fraser University are brave indeed. That may sound like a setup, but it is not. I shall challenge neither the data nor the general conclusion that violent conflict around the world has been decreasing in fits and starts since the Second World War. When it comes to violent conflict among and within countries, things have been getting better. (The trends have not been linear—Figure 1.1 actually shows that the frequency of interstate wars peaked in the 1980s—but the 65-year movement is clear.) Instead I shall accept that Mack et al. are correct on the macro-trends, and focus on their explanations they advance for these remarkable trends. With apologies to any readers of this forum who recoil from academic debates, this might get mildly theoretical and even more mildly methodological.¶ Concerning international wars, one version of the “nuclear-peace” theory is not in fact laid to rest by the data. It is certainly true that nuclear-armed states have been involved in many wars. They have even been attacked (think of Israel), which falsifies the simple claim of “assured destruction”—that any nuclear country A will deter any kind of attack by any country B because B fears a retaliatory nuclear strike from A.¶ But the most important “nuclear-peace” claim has been about mutually assured destruction, which obtains between two robustly nuclear-armed states. The claim is that (1) rational states having second-strike capabilities—enough deliverable nuclear weaponry to survive a nuclear first strike by an enemy—will have an overwhelming incentive not to attack one another; and (2) we can safely assume that nuclear-armed states are rational. It follows that states with a second-strike capability will not fight one another.¶ Their colossal atomic arsenals neither kept the United States at peace with North Vietnam during the Cold War nor the Soviet Union at peace with Afghanistan. But the argument remains strong that those arsenals did help keep the United States and Soviet Union at peace with each other. Why non-nuclear states are not deterred from fighting nuclear states is an important and open question. But in a time when calls to ban the Bomb are being heard from more and more quarters, we must be clear about precisely what the broad trends toward peace can and cannot tell us. They may tell us nothing about why we have had no World War III, and little about the wisdom of banning the Bomb now.¶ Regarding the downward trend in international war, Professor Mack is friendlier to more palatable theories such as the “democratic peace” (democracies do not fight one another, and the proportion of democracies has increased, hence less war); the interdependence or “commercial peace” (states with extensive economic ties find it irrational to fight one another, and interdependence has increased, hence less war); and the notion that people around the world are more anti-war than their forebears were. Concerning the downward trend in civil wars, he favors theories of economic growth (where commerce is enriching enough people, violence is less appealing—a logic similar to that of the “commercial peace” thesis that applies among nations) and the end of the Cold War (which end reduced superpower support for rival rebel factions in so many Third-World countries).¶ These are all plausible mechanisms for peace. What is more, none of them excludes any other; all could be working toward the same end. That would be somewhat puzzling, however. Is the world just lucky these days? How is it that an array of peace-inducing factors happens to be working coincidentally in our time, when such a magical array was absent in the past? The answer may be that one or more of these mechanisms reinforces some of the others, or perhaps some of them are mutually reinforcing. Some scholars, for example, have been focusing on whether economic growth might support democracy and vice versa, and whether both might support international cooperation, including to end civil wars.¶ We would still need to explain how this charmed circle of causes got started, however. And here let me raise another factor, perhaps even less appealing than the “nuclear peace” thesis, at least outside of the United States. That factor is what international relations scholars call hegemony—specifically American hegemony.¶ A theory that many regard as discredited, but that refuses to go away, is called hegemonic stability theory. The theory emerged in the 1970s in the realm of international political economy. It asserts that for the global economy to remain open—for countries to keep barriers to trade and investment low—one powerful country must take the lead. Depending on the theorist we consult, “taking the lead” entails paying for global public goods (keeping the sea lanes open, providing liquidity to the international economy), coercion (threatening to raise trade barriers or withdraw military protection from countries that cheat on the rules), or both. The theory is skeptical that international cooperation in economic matters can emerge or endure absent a hegemon. The distastefulness of such claims is self-evident: they imply that it is good for everyone the world over if one country has more wealth and power than others. More precisely, they imply that it has been good for the world that the United States has been so predominant.¶ There is no obvious reason why hegemonic stability theory could not apply to other areas of international cooperation, including in security affairs, human rights, international law, peacekeeping (UN or otherwise), and so on. What I want to suggest here—suggest, not test—is that American hegemony might just be a deep cause of the steady decline of political deaths in the world.¶ How could that be? After all, the report states that United States is the third most war-prone country since 1945. Many of the deaths depicted in Figure 10.4 were in wars that involved the United States (the Vietnam War being the leading one). Notwithstanding politicians’ claims to the contrary, a candid look at U.S. foreign policy reveals that the country is as ruthlessly self-interested as any other great power in history.¶ The answer is that U.S. hegemony might just be a deeper cause of the proximate causes outlined by Professor Mack. Consider economic growth and openness to foreign trade and investment, which (so say some theories) render violence irrational. American power and policies may be responsible for these in two related ways. First, at least since the 1940s Washington has prodded other countries to embrace the market capitalism that entails economic openness and produces sustainable economic growth. The United States promotes capitalism for selfish reasons, of course: its own domestic system depends upon growth, which in turn depends upon the efficiency gains from economic interaction with foreign countries, and the more the better. During the Cold War most of its allies accepted some degree of market-driven growth.¶ Second, the U.S.-led western victory in the Cold War damaged the credibility of alternative paths to development—communism and import-substituting industrialization being the two leading ones—and left market capitalism the best model. The end of the Cold War also involved an end to the billions of rubles in Soviet material support for regimes that tried to make these alternative models work. (It also, as Professor Mack notes, eliminated the superpowers’ incentives to feed civil violence in the Third World.) What we call globalization is caused in part by the emergence of the United States as the global hegemon.¶ The same case can be made, with somewhat more difficulty, concerning the spread of democracy. Washington has supported democracy only under certain conditions—the chief one being the absence of a popular anti-American movement in the target state—but those conditions have become much more widespread following the collapse of communism. Thus in the 1980s the Reagan administration—the most anti-communist government America ever had—began to dump America’s old dictator friends, starting in the Philippines. Today Islamists tend to be anti-American, and so the Obama administration is skittish about democracy in Egypt and other authoritarian Muslim countries. But general U.S. material and moral support for liberal democracy remains strong.

#### Decline causes transition wars --- the US will become uncooperative and desperate.

Goldstein 7 Professor of Global Politics and International Relations @ University of Pennsylvania “Power transitions, institutions, and China's rise in East Asia: Theoretical expectations and evidence,” Journal of Strategic Studies, Volume 30, Issue 4 & 5 August 2007, pages 639 – 682

Two closely related, though distinct, theoretical arguments focus explicitly on the consequences for international politics of a shift in power between a dominant state and a rising power. In War and Change in World Politics, Robert Gilpin suggested that peace prevails when a dominant state’s capabilities enable it to ‘govern’ an international order that it has shaped. Over time, however, as economic and technological diffusion proceeds during eras of peace and development, other states are empowered. Moreover, the burdens of international governance drain and distract the reigning hegemon, and challengers eventually emerge who seek to rewrite the rules of governance. As the power advantage of the erstwhile hegemon ebbs, it may become desperate enough to resort to the ultima ratio of international politics, force, to forestall the increasingly urgent demands of a rising challenger. Or as the power of the challenger rises, it may be tempted to press its case with threats to use force. It is the rise and fall of the great powers that creates the circumstances under which major wars, what Gilpin labels ‘hegemonic wars’, break out.13 Gilpin’s argument logically encourages pessimism about the implications of a rising China. It leads to the expectation that international trade, investment, and technology transfer will result in a steady diffusion of American economic power, benefiting the rapidly developing states of the world, including China. As the US simultaneously scurries to put out the many brushfires that threaten its far-flung global interests (i.e., the classic problem of overextension), it will be unable to devote sufficient resources to maintain or restore its former advantage over emerging competitors like China. While the erosion of the once clear American advantage plays itself out, the US will find it ever more difficult to preserve the order in Asia that it created during its era of preponderance. The expectation is an increase in the likelihood for the use of force – either by a Chinese challenger able to field a stronger military in support of its demands for greater influence over international arrangements in Asia, or by a besieged American hegemon desperate to head off further decline. Among the trends that alarm those who would look at Asia through the lens of Gilpin’s theory are China’s expanding share of world trade and wealth (much of it resulting from the gains made possible by the international economic order a dominant US established); its acquisition of technology in key sectors that have both civilian and military applications (e.g., information, communications, and electronics linked with to forestall, and the challenger becomes increasingly determined to realize the transition to a new international order whose contours it will define. the ‘revolution in military affairs’); and an expanding military burden for the US (as it copes with the challenges of its global war on terrorism and especially its struggle in Iraq) that limits the resources it can devote to preserving its interests in East Asia.14 Although similar to Gilpin’s work insofar as it emphasizes the importance of shifts in the capabilities of a dominant state and a rising challenger, the power-transition theory A. F. K. Organski and Jacek Kugler present in The War Ledger focuses more closely on the allegedly dangerous phenomenon of ‘crossover’– the point at which a dissatisfied challenger is about to overtake the established leading state.15 In such cases, when the power gap narrows, the dominant state becomes increasingly desperate. Though suggesting why a rising China may ultimately present grave dangers for international peace when its capabilities make it a peer competitor of America, Organski and Kugler’s power-transition theory is less clear about the dangers while a potential challenger still lags far behind and faces a difficult struggle to catch up. This clarification is important in thinking about the theory’s relevance to interpreting China’s rise because a broad consensus prevails among analysts that Chinese military capabilities are at a minimum two decades from putting it in a league with the US in Asia.16 Their theory, then, points with alarm to trends in China’s growing wealth and power relative to the United States, but especially looks ahead to what it sees as the period of maximum danger – that time when a dissatisfied China could be in a position to overtake the US on dimensions believed crucial for assessing power. Reports beginning in the mid-1990s that offered extrapolations suggesting China’s growth would give it the world’s largest gross domestic product (GDP aggregate, not per capita) sometime in the first few decades of the twentieth century fed these sorts of concerns about a potentially dangerous challenge to American leadership in Asia.17 The huge gap between Chinese and American military capabilities (especially in terms of technological sophistication) has so far discouraged prediction of comparably disquieting trends on this dimension, but inklings of similar concerns may be reflected in occasionally alarmist reports about purchases of advanced Russian air and naval equipment, as well as concern that Chinese espionage may have undermined the American advantage in nuclear and missile technology, and speculation about the potential military purposes of China’s manned space program.18 Moreover, because a dominant state may react to the prospect of a crossover and believe that it is wiser to embrace the logic of preventive war and act early to delay a transition while the task is more manageable, Organski and Kugler’s power-transition theory also provides grounds for concern about the period prior to the possible crossover.19 pg. 647-650

#### Every academic discipline confirms the centrality of hegemony as a guarantor of peace.

**Wohlforth 9** – Professor of government @ Dartmouth College. [[William C. Wohlforth](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#back), “Unipolarity, Status Competition, and Great Power War,” World Politics, Volume 61, Number 1, January 2009]

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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f6) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f7) “If everyone has high status,” Randall Schweller notes, “no one does.”[8](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f8) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f9) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f10) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f11) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f12) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f13) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f14) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f15) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f16) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f17) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f18) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f19) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f20) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f21) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f22) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f23) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f24) 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](http://muse.jhu.edu/journals/world_politics/v061/61.1.wohlforth.html#f25) 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. Pg. 33-35//1ac

#### And, the pursuit of hegemony is inevitable.

Tellis 9 — Ashley J. Tellis, Senior Associate at the Carnegie Endowment for International Peace specializing in international security, defense and Asian strategic issues, Research Director of the Strategic Asia program at NBR—the National Bureau of Asian Research, holds a Ph.D. from the University of Chicago, 2009 (“Preserving Hegemony: The Strategic Tasks Facing the United States,” *Global Asia*, Volume 4, Number 1, Available Online at http://globalasia.org/pdf/issue9/Ashley\_J.\_Tellis.pdf, Accessed 09-13-2011, p. 54-55)

This hegemony is by no means fated to end any time soon, however, given that the United States remains predominant by most conventional indicators of national power. The character of the United States’ hegemonic behavior in the future will thus remain an issue of concern both within the domestic polity and internationally. Yet the juvenescence of the United State’s “unipolar moment,” combined with the disorientation produced by the September 11 attacks, ought to restrain any premature generalization that the imperial activism begun by the Clinton administration, and which the Bush administration took to its most spirited apotheosis, would in some way come to define the permanent norm of US behavior in the global system. In all probability, it is much more likely that the limitations on US [end page 54] power witnessed in Afghanistan and Iraq will produce a more phlegmatic and accommodating United States over the longer term, despite the fact that the traditional US pursuit of dominance — understood as the quest to maintain a preponderance of power, neutralize threatening challengers, and protect freedom of action, goals that go back to the foundations of the republic — is unlikely to be extinguished any time soon.

Precisely because the desire for dominance is likely to remain a permanent feature of US geopolitical ambitions — even though how it is exercised will certainly change in comparison to the Bush years — the central task facing the next administration will still pertain fundamentally to the issue of US power. This concern manifests itself through the triune challenges of: redefining the United States’ role in the world, renewing the foundations of US strength, and recovering the legitimacy of US actions. In other words, the next administration faces the central task of clarifying the character of US hegemony, reinvigorating the material foundations of its power, and securing international support for its policies.

### Adv 2

**Advantage 2 --- Warming**

#### Warming is real, anthropogenic, and reversible if we act now.

**Nuccitelli 11** (Dana, An environmental scientist at a private environmental consulting firm in the Sacramento, California area. He has a Bachelor's Degree in astrophysics from the University of California at Berkeley, and a Master's Degree in physics from the University of California at Davis. He has been researching climate science, economics, and solutions as a hobby since 2006, and has contributed to Skeptical Science since September, 2010., Updated 2011, Originally Posted 9/24/2010, The Big Picture, http://www.skepticalscience.com/big-picture.html)

The Earth is Warming We know the planet is warming from surface temperature stations and satellites measuring the temperature of the Earth's surface and lower atmosphere. We also have various tools which have measured the warming of the Earth's oceans. Satellites have measured an energy imbalance at the top of the Earth's atmosphere. Glaciers, sea ice, and ice sheets are all receding. Sea levels are rising. Spring is arriving sooner each year. There's simply no doubt - the planet is warming (Figure 1). Global Warming Continues And yes, the warming is continuing. The 2000s were hotter than the 1990s, which were hotter than the 1980s, which were hotter than the 1970s. 2010 tied for the hottest year on record. The 12-month running average global temperature broke the record three times in 2010, according to NASA Goddard Institute for Space Studies (GISS) data. Sea levels are still rising, ice is still receding, spring is still coming earlier, there's still a planetary energy imbalance, etc. etc. Contrary to what some would like us to believe, the planet has not magically stopped warming. Those who argue otherwise are confusing short-term noise with long-term global warming (Figure 2). Foster and Rahmstorf (2011) showed that when we filter out the short-term effects of the sun, volcanoes, and El Niño cycles, the underlying man-made global warming trend becomes even more clear (Figure 3). For as much as atmospheric temperatures are rising, the amount of energy being absorbed by the planet is even more striking when one looks into the deep oceans and the change in the global heat content (Figure 4). Humans are Increasing Atmospheric Greenhouse Gases The amount of greenhouse gases in the atmosphere - particularly carbon dioxide (CO2) - has been rising steadily over the past 150 years. There are a number of lines of evidence which clearly demonstrate that this increase is due to human activities, primarily burning fossil fuels. The most direct of evidence involves simple accounting. Humans are currently emitting approximately 30 billion tons of CO2 per year, and the amount in the atmosphere is increasing by about 15 billion tons per year. Our emissions have to go somewhere - half goes into the atmosphere, while the other half is absorbed by the oceans (which is causing another major problem - ocean acidification). We also know the atmospheric increase is from burning fossil fuels because of the isotopic signature of the carbon in the atmosphere. Carbon comes in three different isotopes, and plants have a preference for the lighter isotopes. So if the fraction of lighter carbon isotopes in the atmosphere is increasing, we know the increase is due to burning plants and fossil fuels, and that is what scientists observe. The fact that humans are responsible for the increase in atmospheric CO2 is settled science. The evidence is clear-cut. Human Greenhouse Gases are Causing Global Warming There is overwhelming evidence that humans are the dominant cause of the recent global warming, mainly due to our greenhouse gas emissions. Based on fundamental physics and math, we can quantify the amount of warming human activity is causing, and verify that we're responsible for essentially all of the global warming over the past 3 decades. The aforementioned Foster and Rahmstorf (2011) found a 0.16°C per decade warming trend since 1979 after filtering out the short-term noise. In fact we expect human greenhouse gas emissions to cause more warming than we've thus far seen, due to the thermal inertia of the oceans (the time it takes to heat them). Human aerosol emissions are also offsetting a significant amount of the warming by causing global dimming. Huber and Knutti (2011) found that human greenhouse gas emissions have caused 66% more global warming than has been observed since the 1950s, because the cooling effect of human aerosol emissions have offset about 44% of that warming. They found that overall, human effects are responsible for approximately 100% of the observed global warming over the past 60 years (Figure 5). There are also numerous 'fingerprints' which we would expect to see from an increased greenhouse effect (i.e. more warming at night, at higher latitudes, upper atmosphere cooling) that we have indeed observed (Figure 6). Climate models have projected the ensuing global warming to a high level of accuracy, verifying that we have a good understanding of the fundamental physics behind climate change. Sometimes people ask "what would it take to falsify the man-made global warming theory?". Well, basically it would require that our fundamental understanding of physics be wrong, because that's what the theory is based on. This fundamental physics has been scrutinized through scientific experiments for decades to centuries. The Warming will Continue We also know that if we continue to emit large amounts of greenhouse gases, the planet will continue to warm. We know that the climate sensitivity to a doubling of atmospheric CO2 from the pre-industrial level of 280 parts per million by volume (ppmv) to 560 ppmv (we're currently at 390 ppmv) will cause 2–4.5°C of warming. And we're headed for 560 ppmv in the mid-to-late 21st century if we continue business-as-usual emissions. The precise sensitivity of the climate to increasing CO2 is still fairly uncertain: 2–4.5°C is a fairly wide range of likely values. However, even if we're lucky and the climate sensitivity is just 2°C for doubled atmospheric CO2, if we continue on our current emissions path, we will commit ourselves to that amount of warming (2°C above pre-industrial levels) within the next 75 years. The Net Result will be Bad There will be some positive results of this continued warming. For example, an open Northwest Passage, enhanced growth for some plants and improved agriculture at high latitudes (though this will require use of more fertilizers), etc. However, the negatives will almost certainly outweigh the positives, by a long shot. We're talking decreased biodiversity, water shortages, increasing heat waves (both in frequency and intensity), decreased crop yields due to these impacts, damage to infrastructure, displacement of millions of people, etc. Arguments to the contrary are superficial One thing I've found in reading skeptic criticisms of climate science is that they're consistently superficial. For example, the criticisms of James Hansen's 1988 global warming projections never go beyond "he was wrong," when in reality it's important to evaluate what caused the discrepancy between his projections and actual climate changes, and what we can learn from this. And those who argue that "it's the Sun" fail to comprehend that we understand the major mechanisms by which the Sun influences the global climate, and that they cannot explain the current global warming trend. And those who argue "it's just a natural cycle" can never seem to identify exactly which natural cycle can explain the current warming, nor can they explain how our understanding of the fundamental climate physics is wrong. There are legitimate unresolved questions Much ado is made out of the expression "the science is settled." The science is settled in terms of knowing that the planet is warming rapidly, and that humans are the dominant cause. There are certainly unresolved issues. As noted above, there's a big difference between a 2°C and a 4.5°C warming for a doubling of atmospheric CO2, and it's an important question to resolve, because we need to know how fast the planet will warm in order to know how fast we need to reduce our greenhouse gas emissions. There are significant uncertainties in some feedbacks which play into this question. For example, will clouds act as a net positive feedback (by trapping more heat, causing more warming) or negative feedback (by reflecting more sunlight, causing a cooling effect) as the planet continues to warm? And exactly how much global warming is being offset by human aerosol emissions? These are the sorts of questions we should be debating, and the issues that most climate scientists are investigating. Unfortunately there is a there is a very vocal contingent of people determined to continue arguing the resolved questions for which the science has already been settled. And when climate scientists are forced to respond to the constant propagation of misinformation on these settled issues, it just detracts from our investigation of the legitimate, unresolved, important questions. Smart Risk Management Means Taking Action People are usually very conservative when it comes to risk management. Some of us buy fire insurance for our homes when the risk of a house fire is less than 1%, for example. When it comes to important objects like cars and homes, we would rather be safe than sorry. But there is arguably no more important object than the global climate. We rely on the climate for our basic requirements, like having enough accessible food and water. Prudent risk management in this case is clear. The scientific evidence discussed above shows indisputably that there is a risk that we are headed towards very harmful climate change. There are uncertainties as to how harmful the consequences will be, but uncertainty is not a valid reason for inaction. There's very high uncertainty whether I'll ever be in a car accident, but it would be foolish of me not to prepare for that possibility by purchasing auto insurance. Moreover, uncertainty cuts both ways, and it's just as likely that the consequences will be worse than we expect as it is that the consequences won't be very bad. We Can Solve the Problem The good news is that we have the tools we need to mitigate the risk posed by climate change. A number of plans have been put forth to achieve the necessary greenhouse gas emissions cuts (i.e. here and here and here). We already have all the technology we need. Opponents often argue that mitigating global warming will hurt the economy, but the opposite is true. Those who argue that reducing emissions will be too expensive ignore the costs of climate change - economic studies have consistently shown that mitigation is several times less costly than trying to adapt to climate change (Figure 7). This is why there is a consensus among economists with expertise in climate that we should put a price on carbon emissions (Figure 8). should US reduce emissions The Big Picture The big picture is that we know the planet is warming, humans are causing it, there is a substantial risk to continuing on our current path, but we don't know exactly how large the risk is. However, uncertainty regarding the magnitude of the risk is not an excuse to ignore it. We also know that if we continue on a business-as-usual path, the risk of catastrophic consequences is very high. In fact, the larger the uncertainty, the greater the potential for the exceptionally high risk scenario to become reality. We need to continue to decrease the uncertainty, but it's also critical to acknowledge what we know and what questions have been resolved, and that taking no action is not an option. The good news is that we know how to solve the problem, and that doing so will minimize the impact not only on the climate, but also on the economy. The bottom line is that from every perspective - scientific, risk management, economic, etc. - there is no reason not to immeditately take serious action to mitigate climate change, and failing to do so would be exceptionally foolish.

#### SMRs are the only solution that adresses the magnitude of warming.

**Palley 11** (Reese Palley, The London School of Economics, 2011, The Answer: Why Only Inherently Safe, Mini Nuclear Power Plans Can Save Our World, p. 186-90)

The central investigation of this book has been directed at the scale of the nuclear industry. The book has argued that all anthropogenic challenges that put in question **continued human existence** on Earth are a **matter of scale**. It was nature’s unanticipated success with her human experiment, the evolutionary choice of brains over brawn, setting in motion the underlying scale problems that opened our Pandora’s box of calamities. The history of man on Earth can best be viewed as a race between population and resources in which, for some millennia, population expansion leads and the Earth’s resources have been straining to catch up. When population bloomed from 100 million brainy humans to a billion, the problems of scale emerged as the price we had to pay for success as a species. The conversion of forests to agriculture, responding to the need to feed a burgeoning population, initiated the emerging problem of scale. The elimination of oxygen-emitting forests was mitigated to a large measure in the beginning of our population growth by the slow rate of change of the deforestation, which allowed an absorbable increase of CO2 in the atmosphere. Natural processes, such as the ability of the oceans to take up CO2, tamped down global warming. But as the scale of the release of warming gases exploded a few hundred years ago, our remaining forests and our seas, our first line of defense against CO2 imbalance, could not cope and the level of CO2 has risen alarmingly each year since 1800. When human population climbed from a billion to six billion and these six billion reveled in the enormous energy content of coal, the scenario for **disaster on a global scale** came into play. The impact of the loss of forest paled in comparison to the havoc that the use of fossil fuels represented. In a world that was hungry for energy and, not incidentally, living on a Malthusian edge of food supply, coal burst upon us as manna from heaven. Coal was everywhere, easy to mine, and in enormous, almost unending supply It generated the cheap heat needed to run the engines of early industrialization. An unintended Faustian bargain was struck. The immediate cost of coal in the cities, dirt and pollution, were not out of sync with what urban man had lived with for centuries. It was beyond the science and the understanding of the time that burning vast millennial coal deposits would do little more than discommode the proximate few and benefit many. Again it was not the burning, it was **the scale** of the burning that dumped billions of tons of CO2 into the atmosphere. We are now presented with a horrendous invoice that must be paid if we are to **survive** in anywhere near the comfort to which we have become accustomed. It has been the intent of this book to argue that the **scale of the warming catastrophe** must be viewed primarily in terms of the continuing flow of CO2 into the atmosphere. Every possible source of CO2, no matter how small, must be identified and interdicted, since every fourth molecule of the gas will remain with us as a climate moderator for thousands of years. What we find is that all of the sources of energy including so-called green energy are CO2-culpable and that each, in spite of claims to the contrary, adds its tiny mite or enormous mass to the climate changes looming in man’s future. The book argues that the scale of the consumption of fossil fuels is clearly unsustainable and, more to the point, that the feeble attempts to restrict CO2 production are little more than a glossing over of the problem. Capping but not ending production of greenhouse gases only magnifies the unthinkable future costs of bringing the level of CO2 and other greenhouse gases back into balance. Logic dictates that merely limiting greenhouse gases pushes possible solutions farther and farther into the future and does little to mitigate the difficulties that will arise in the near future. Logic dictates that our reasonably comfortable survival depends on the immediate and total cessation of increases to parts per million of CO2 in the air. Logic dictates that if we are to continue to enjoy the level of comfort, wealth, and ease afforded us since the beginning of the twentieth century we must not only halt the increase but commence the actual decrease of warming gases at work in the atmosphere. That conclusion brings the book to the problems and the solutions inherent in nuclear power, the **only energy source** that can guarantee us a reasonable future that might be resistant to CO2 warming. Here the argument returns once again to the problem of scale of nuclear reactors, especially as the size of these reactors is related to the brief time left to us to get a grip on calamitous climate changes. The beginnings of nuclear energy lay in the demands of war. The battle between good and evil characterized by the Second World War gave hurried birth to a discovery that had the inherent power to both destroy and salvage. The power to destroy required plutonium on an enormous scale, which was projected forward into the postwar development of civilian reactors. The demand for scarce plutonium for the bombs of the cold war defined the type of reactors that were being developed. These were the breeder reactors, which spewed out plutonium measured in tons that had previously been available only in ounces, and would continue to do so when the wartime need was far behind us. What was once precious, rare, and desirable has become dangerous nuclear waste, and the imperfectly perceived scale of the waste problem has seriously inhibited the logical growth and development of nuclear power. By some unthinkable universal coincidence, nuclear power became available to man for war at the same time that it could prove to be the solution to man’s greatest peacetime challenge. But the gigawatt nuclear power plants that emerged from the war had within them the seeds of their own severe limitation. The scale of the risks, real and imagined, grew exponentially as the scale of energy output grew only linearly. These risks, some merely perceived, some dangerously real and some financial, have conspired to restrict the enormous expansion of nuclear power that is needed to quickly replace our present consumption of energy from fossil fuels. The present rate of replacement of fossil with nuclear sources is at a pace that will have little impact on ultimately dealing with the CO2 imbalance. This slow rate of change is compounded of public fears, bureaucratic regulatory mechanisms resistant to novel solutions, and a private capital market that is unable to conjure with the imagined and real risks of the huge gigawatt reactors that dominate the industry. It is a Gordian knot that cannot be unraveled but which can only be cut by a political sword that, alas, still lacks the edge to do the job. By another rare act of cosmic fortuity, there is a parallel existing nuclear technology that, barring political interference, is capable of addressing the scale problems inherent in gigawatt reactors. From the beginning of the nuclear era, researchers such as Weinberg and Wigner and Teller developed small, inherently safe nuclear reactors that did not breed plutonium. This was reason enough for the military, balancing urgent demands on research and development budgets, to consign the concept of “smaller and safer is better” to dusty shelves in our national science attic. This book has argued that small reactors, that produce a tenth of the energy of the giants also generate inordinately less of the risk that inhibits growth of the industry. Construction of small reactors is a fraction of the cost of construction of gigawatt reactors. Thus the number of years that scarce capital is tied up and at risk is substantially reduced. The book argues that a 100 MWe reactor88 is a much bigger hardware bargain than a gigawatt reactor, which, from start to output, can cost $15 billion. It is not only the hardware costs that contribute to the devilish details of risk. The problem is the inability of the market to accurately or even approximately estimate the real cost of the capital that would be tied up for over a decade in a project that, through technological advancements, could be obsolete before it ever joins the grid.

#### All alternatives are insufficiency in scope. Safety concerns are hype.

Nordhaus 12 (Michael Shellenberger, Jessica Lovering, Founder of the Breakthrough Institute, graduate of Earlham College and holds a masters degree in cultural anthropology from the University of California, Santa Cruz, "New Nukes: Why We Need Radical Innovation to Make New Nuclear Energy Cheap", September 11, http://thebreakthrough.org/index.php/programs/energy-and-climate/new-nukes/)

Arguably, the biggest impact of Fukushima on the nuclear debate, ironically, has been to force a growing number of pro-nuclear environmentalists out of the closet, including us. The reaction to the accident by anti-nuclear campaigners and many Western publics put a fine point on the gross misperception of risk that informs so much anti-nuclear fear. Nuclear remains the only proven technology capable of reliably generating zero-carbon energy at a scale that can have any impact on global warming. Climate change -- and, for that matter, the enormous present-day health risks associated with burning coal, oil, and gas -- simply dwarf any legitimate risk associated with the operation of nuclear power plants. About 100,000 people die every year due to exposure to air pollutants from the burning of coal. By contrast, about 4,000 people have died from nuclear energy -- ever -- almost entirely due to Chernobyl. But rather than simply lecturing our fellow environmentalists about their misplaced priorities, and how profoundly inadequate present-day renewables are as substitutes for fossil energy, we would do better to take seriously the real obstacles standing in the way of a serious nuclear renaissance. Many of these obstacles have nothing to do with the fear-mongering of the anti-nuclear movement or, for that matter, the regulatory hurdles imposed by the U.S. Nuclear Regulatory Commission and similar agencies around the world. As long as nuclear technology is characterized by enormous upfront capital costs, it is likely to remain just a hedge against overdependence on lower-cost coal and gas, not the wholesale replacement it needs to be to make a serious dent in climate change. Developing countries need large plants capable of bringing large amounts of new power to their fast-growing economies. But they also need power to be cheap. So long as coal remains the cheapest source of electricity in the developing world, it is likely to remain king. The most worrying threat to the future of nuclear isn't the political fallout from Fukushima -- it's economic reality. Even as new nuclear plants are built in the developing world, old plants are being retired in the developed world. For example, Germany's plan to phase-out nuclear simply relies on allowing existing plants to be shut down when they reach the ends of their lifetime. Given the size and cost of new conventional plants today, those plants are unlikely to be replaced with new ones. As such, the combined political and economic constraints associated with current nuclear energy technologies mean that nuclear energy's share of global energy generation is unlikely to grow in the coming decades, as global energy demand is likely to increase faster than new plants can be deployed. To move the needle on nuclear energy to the point that it might actually be capable of displacing fossil fuels, we'll need new nuclear technologies that are cheaper and smaller. Today, there are a range of nascent, smaller nuclear power plant designs, some of them modifications of the current light-water reactor technologies used on submarines, and others, like thorium fuel and fast breeder reactors, which are based on entirely different nuclear fission technologies. Smaller, modular reactors can be built much faster and cheaper than traditional large-scale nuclear power plants. Next-generation nuclear reactors are designed to be incapable of melting down, produce drastically less radioactive waste, make it very difficult or impossible to produce weapons grade material, use less water, and require less maintenance. Most of these designs still face substantial technical hurdles before they will be ready for commercial demonstration. That means a great deal of research and innovation will be necessary to make these next generation plants viable and capable of displacing coal and gas. The United States could be a leader on developing these technologies, but unfortunately U.S. nuclear policy remains mostly stuck in the past. Rather than creating new solutions, efforts to restart the U.S. nuclear industry have mostly focused on encouraging utilities to build the next generation of large, light-water reactors with loan guarantees and various other subsidies and regulatory fixes. With a few exceptions, this is largely true elsewhere around the world as well. Nuclear has enjoyed bipartisan support in Congress for more than 60 years, but the enthusiasm is running out. The Obama administration deserves credit for authorizing funding for two small modular reactors, which will be built at the Savannah River site in South Carolina. But a much more sweeping reform of U.S. nuclear energy policy is required. At present, the Nuclear Regulatory Commission has little institutional knowledge of anything other than light-water reactors and virtually no capability to review or regulate alternative designs. This affects nuclear innovation in other countries as well, since the NRC remains, despite its many critics, the global gold standard for thorough regulation of nuclear energy. Most other countries follow the NRC's lead when it comes to establishing new technical and operational standards for the design, construction, and operation of nuclear plants. What's needed now is a new national commitment to the development, testing, demonstration, and early stage commercialization of a broad range of new nuclear technologies -- from much smaller light-water reactors to next generation ones -- in search of a few designs that can be mass produced and deployed at a significantly lower cost than current designs. This will require both greater public support for nuclear innovation and an entirely different regulatory framework to review and approve new commercial designs. In the meantime, developing countries will continue to build traditional, large nuclear power plants. But time is of the essence. With the lion's share of future carbon emissions coming from those emerging economic powerhouses, the need to develop smaller and cheaper designs that can scale faster is all the more important. A true nuclear renaissance can't happen overnight. And it won't happen so long as large and expensive light-water reactors remain our only option. But in the end, **there is no credible path to mitigating climate change without a massive global expansion of nuclear energy**. If you care about climate change, nothing is more important than developing the nuclear technologies we will need to get that job done.

#### Extinction

**Brandenberg 99** (John & Monica Paxson, Visiting Prof. Researcher @ Florida Space Institute, Physicist Ph.D., Science Writer, Dead Mars Dying Earth, Pg 232-233)

The ozone hole expands, driven by a monstrous synergy with global warming that puts more catalytic ice crystals into the stratosphere, but this affects the far north and south and not the major nations’ heartlands. The seas rise, the tropics roast but the media networks no longer cover it. The Amazon rainforest becomes the Amazon desert. Oxygen levels fall, but profits rise for those who can provide it in bottles. An equatorial high-pressure zone forms, forcing drought in central Africa and Brazil, the Nile dries up and the monsoons fail. Then inevitably, at some unlucky point in time, a major unexpected event occurs—a major volcanic eruption, a sudden and dramatic shift in ocean circulation or a large asteroid impact (those who think freakish accidents do not occur have paid little attention to life or Mars), or a nuclear war that starts between Pakistan and India and escalates to involve China and Russia . . . Suddenly the gradual climb in global temperatures goes on a mad excursion as the oceans warm and release large amounts of dissolved carbon dioxide from their lower depths into the atmosphere. Oxygen levels go down precipitously as oxygen replaces lost oceanic carbon dioxide. Asthma cases double and then double again. Now a third of the world fears breathing. As the oceans dump carbon dioxide, the greenhouse effect increases, which further warms the oceans, causing them to dump even more carbon. Because of the heat, plants die and burn in enormous fires, which release more carbon dioxide, and the oceans evaporate, adding more water vapor to the greenhouse. Soon, we are in what is termed a runaway greenhouse effect, as happened to Venus eons ago. The last two surviving scientists inevitably argue, one telling the other, “See! I told you the missing sink was in the ocean!” Earth, as we know it, dies. After this Venusian excursion in temperatures, the oxygen disappears into the soil, the oceans evaporate and are lost and the dead Earth loses its ozone layer completely. Earth is too far from the Sun for it to be the second Venus for long. Its atmosphere is slowly lost—as is its water—because of ultraviolet bombardment breaking up all the molecules apart from carbon dioxide. As the atmosphere becomes thin, the Earth becomes colder. For a short while temperatures are nearly normal, but the ultraviolet sears any life that tries to make a comeback. The carbon dioxide thins out to form a thin veneer with a few wispy clouds and dust devils. Earth becomes the second Mars—red, desolate, with perhaps a few hardy microbes surviving.

### Solvency

#### Contention Three – Solvency

#### Military action is necessary---it shapes technology development and overcomes market failures---that's key to commercialization.

**Andres 11** (\*Richard B. – Professor of National Security Strategy at the National War College and a Senior Fellow and Energy and Environmental Security and Policy Chair in the Center for Strategic Research, Institute for National Strategic Studies, at the National Defense University, \*\*Hanna L. Breetz – Doctoral candidate in the Department of Political Science at The Massachusetts Institute of Technology, Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications, Strategic Forum, National Defense University, Institute for National Strategic Studies, February 2011, http://www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf)

DoD as first Mover Thus far, this paper has reviewed two of DOD’s most pressing energy vulnerabilities—grid insecurity and fuel convoys—and explored how they could be addressed by small reactors. We acknowledge that there are many un- certainties 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 mo- bility, DOD has a compelling interest in ensuring that they make the leap from paper to production. How- ever, if DOD does not provide an initial demonstration and market, there is a chance that the U.S. small reactor industry may never get off the ground. The leap from the laboratory to the marketplace is so difficult to bridge that it is widely referred to as the “Valley of Death.” Many promising technologies are never commercialized due to a **variety of market failures**— including technical and financial uncertainties, information asymmetries, capital market imperfections, transaction costs, and environmental and security externalities—that impede financing and early adoption and can lock innovative technologies **out of the marketplace**.28 In such cases, the Government can help a worthy technology to bridge the Valley of Death by accepting the first mover costs and demonstrating the technology’s scientific and economic viability.29 Historically, nuclear power has been “the **most clear-cut example** . . . of an important general-purpose technology that in the absence of military and defense-related procurement would not have been developed at all.”30 Government involvement is likely to be **crucial** for innovative, next-generation nuclear technology as well. Despite the widespread revival of interest in nu- clear 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, **M**assachusetts **I**nstitute of **T**echnology 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 nu- clear 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 ar- gued that small reactors could play a key role in the sec- ond 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 dem- onstration effects, technological interdependence, net- work 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 mar- ket. 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 de- signs. On one hand, Matthew Bunn and Martin Ma- lin 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 set- tings in which they can be used, and it is quite pos- sible 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.

#### Focus on strategic deterrence is key to adverting crisis escalation—reject the infinite number of root causes that debilitate action

John Moore 4 chaired law prof, UVA. Frm first Chairman of the Board of the US Institute of Peace and as the Counselor on Int Law to the Dept. of State, Beyond the Democratic Peace, 44 Va. J. Int'l L. 341, Lexis

If major interstate war is predominantly a product of a synergy between a potential nondemocratic aggressor and an absence of effective deterrence, what is the role of the many traditional "causes" of war? Past, and many contemporary, theories of war have focused on the role of specific disputes between nations, ethnic and religious differences, arms races, poverty and social injustice, competition for resources, incidents and accidents, greed, fear, perceptions of "honor," and many other factors. Such factors may well play a role in motivating aggression or generating fear and manipulating public opinion. The reality, however, is that while some of these factors may have more potential to contribute to war than others, there may well be an infinite set of motivating factors, or human wants, motivating aggression. It is not the independent existence of such motivating factors for war but rather the circumstances permitting or encouraging high-risk decisions leading to war that is the key to more effectively controlling armed conflict. And the same may also be true of democide. The early focus in the Rwanda slaughter on "ethnic conflict," as though Hutus and Tutsis had begun to slaughter each other through spontaneous combustion, distracted our attention from the reality that a nondemocratic Hutu regime had carefully planned and orchestrated a genocide against Rwandan Tutsis as well as its Hutu opponents. 158 Certainly if we were able to press a button and end poverty, racism, religious intolerance, injustice, and endless disputes, we would want to do so. Indeed, democratic governments must remain committed to policies that will produce a better world by all measures of human progress. The broader achievement of democracy and the rule of law will itself assist in this progress. No one, however, has yet been able to demonstrate the kind of robust correlation with any of these "traditional" causes of war that is reflected in the "democratic peace." Further, given the difficulties in overcoming many of these social problems, an approach to war exclusively dependent on their solution may doom us to war for generations to come. [\*394] A useful framework for thinking about the war puzzle is provided in the Kenneth Waltz classic Man, the State and War, 159 first published in 1954 for the Institute of War and Peace Studies, in which he notes that previous thinkers about the causes of war have tended to assign responsibility at one of the three levels of individual psychology, the nature of the state, or the nature of the international system. This tripartite level of analysis has subsequently been widely copied in the study of international relations. We might summarize my analysis in this classical construct by suggesting that the most critical variables are the second and third levels, or "images," of analysis. Government structures, at the second level, seem to play a central role in levels of aggressiveness in high-risk behavior leading to major war. In this, the "democratic peace" is an essential insight. The third level of analysis, the international system, or totality of external incentives influencing the decision to go to war, is also critical when government structures do not restrain such high-risk behavior on their own. Indeed, nondemocratic systems may not only fail to constrain inappropriate aggressive behavior, they may even massively enable it by placing the resources of the state at the disposal of a ruthless regime elite. It is not that the first level of analysis, the individual, is unimportant - I have already argued that it is important in elite perceptions about the permissibility and feasibility of force and resultant necessary levels of deterrence. It is, instead, that the second level of analysis, government structures, may be a powerful proxy for settings bringing to power those who are disposed to aggressive military adventures and in creating incentive structures predisposed to high-risk behavior. We might also want to keep open the possibility that a war/peace model focused on democracy and deterrence might be further usefully refined by adding psychological profiles of particular leaders as we assess the likelihood of aggression and levels of necessary deterrence. Nondemocracies' leaders can have different perceptions of the necessity or usefulness of force and, as Marcus Aurelius should remind us, not all absolute leaders are Caligulas or Neros. Further, the history of ancient Egypt reminds us that not all Pharaohs were disposed to make war on their neighbors. Despite the importance of individual leaders, however, the key to war avoidance is understanding that major international war is critically an interaction, or synergy, of certain characteristics at levels two and three - specifically an absence of [\*395] democracy and an absence of effective deterrence. Yet another way to conceptualize the importance of democracy and deterrence in war avoidance is to note that each in its own way internalizes the costs to decision elites of engaging in high-risk aggressive behavior. Democracy internalizes these costs in a variety of ways including displeasure of the electorate at having war imposed upon it by its own government. And deterrence either prevents achievement of the objective altogether or imposes punishing costs making the gamble not worth the risk. 160 III. Testing the Hypothesis Hypotheses, or paradigms, are useful if they reflect the real world better than previously held paradigms. In the complex world of foreign affairs and the war puzzle, perfection is unlikely. No general construct will fit all cases even in the restricted category of "major interstate war;" there are simply too many variables. We should insist, however, on testing against the real world and on results that suggest enhanced usefulness over other constructs. In testing the hypothesis, we can test it for consistency with major wars. That is, in looking, for example, at the principal interstate wars in the twentieth century, did they present both a nondemocratic aggressor and an absence of effective deterrence? 161 And although it, by itself, does not prove causation, we might also want to test the hypothesis against settings of potential wars that did not occur. That is, in non-war settings, was there an absence of at least one element of the synergy? We might also ask questions about the effect of changes on the international system in either element of the synergy. That is, what, in general, happens when a totalitarian state makes a transition to stable democracy or vice versa? And what, in general, happens when levels of deterrence are dramatically increased or decreased?

**There is no single root cause of war—complexity dooms monocausal explanations.**

Vivienne **Jabri**, Lecturer in International Relations at the University of Kent, **1996** (“Introduction: Conflict Analysis Reconsidered,” *Discourses on Violence: Conflict Analysis Reconsidered*, Published by Manchester University Press ND, ISBN 0719039592, p. 3)

The study of war has produced a number of often conflicting answers to Quincy Wright's question, "Why is war thought? Why is war fought?"1 The history of human political violence has shown that **we cannot produce monocausal explanations of war**. Studies which concentrate on assumed innate human characteristics **fail** to account for the societal factors which are implicated in what is essentially an interactive and dynamic process. Similarly, investigations which link attributes of the international system, such as balances of power, not only produce contradictory findings, but seem to **negate** human decision-making and psychological processes in the onset of war **in specific conditions**. Studies of violent conflict aspire to uncover, through empirical investigation, patterns of behaviour which lead to war. As indicated by Holsti, studies of war may be divided into those which emphasise structural or "ecological" variables, such as the distribution of power capabilities within the system, and those which emphasise "decision-making, values, and perceptions of policy-makers" in attempts to isolate common features leading up to the decision for war.2

## \*\*\* 2AC

### 2AC—T

**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)

One of the obstacles to intelligent discussion of this topic is the tremendous **potential for confusion** about what is meant by several of the key terms involved. In the hopes of contributing to the development of a consistent and precise vocabulary applying to this important but understudied area of regulatory activity, various terms are defined below.

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 behaviors 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 behavior 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, the definition 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 behaviors 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.

### Case

**7. No link—we are a challenge message.** The 1AC is a *challenge* message not a threat message. That increases salience, collective action, and creative problem-solving.

Robert **BRULLE** Sociology & Envt’l Science @ Drexel **’10** “From Environmental Campaigns to Advancing the Public Dialog: Environmental Communication for Civic Engagement” *Environmental Communication* 4 (1) p. 92

From Identity to Challenge Campaigns One of the most common assumptions in designing identity-based environmental communication campaigns is that fear appeals are counterproductive. As Swim et al. (2009, p. 80) note: ‘‘well meaning attempts to create urgency about climate change by appealing to fear of disasters or health risks frequently lead to the exact opposite of the desired response: denial, paralysis, apathy, or actions that can create greater risks than the one being mitigated.’’ While the author goes on to qualify and expand this line of argument, this has been taken as an absolute in the popular press and much of the grey literature produced by nonprofit organizations and foundations. However, the academic literature portrays a much more complex picture: whereas apocalyptic rhetoric has been shown to be able to evoke powerful feelings of issue salience (O’Neill & Nicholson-Cole, 2009, p. 373), reassuring messages, such as those advocated by ecoAmerica, have the least ability to increase issue salience (de Hoog, Stroebe, & de Wit, 2007; Lowe et al., 2006; Meijinders, Cees, Midden, & Wilke, 2001; Witte & Allen, 2000). Additionally, apocalyptic messages do not necessarily result in denial. A number of empirical studies show that individuals respond to threat appeals with an increased focus on collective action (Eagly & Kulesa, 1997; Langford, 2002; Leiserowitz, Kates, & Parris, 2006, p. 437; Maiteny, 2002; Shaiko, 1999; Swim et al., 2009, p. 94). Tomaka, Blascovich, Kelsey, and Leitten (1993, p. 248) distinguish between threat and challenge messaging: threat messages ‘‘are those in which the perception of danger exceeds the perception of abilities or resources to cope with the stressor. Challenge appraisals, in contrast, are those in which the perception of danger does not exceed the perception of resources or abilities to cope.’’ If a meaningful response to a threat can be taken that is within the resources of the individual, this results in a challenge, which ‘‘may galvanize creative ideas and actions in ways that transform and strengthen the resilience and creativity of individuals and communities’’ (Fritze, Blashki, Burke, & Wieseman, 2008, p. 12). While fear appeals can lead to maladaptive behaviors, fear combined with information about effective actions can also be strongly motivating (O’Neill & Nicholson-Cole, 2009, p. 376; Witte & Allen, 2000).

**No impact—Climate crisis rhetoric isn’t alarmist – current data are without precedent.**

Thomas **PRINCEN** School of Natural Resources and Environment @ Michigan **’10** *Treading Softly* p. 6-7

To my mind, these changes are quite unlike those of the past. And what they portend for the future is quite unimaginable. My thirty-plus years of observation and study, of teaching and tinkering have led me to conclude, only in the last few years, that fundamental shifts are now occurring, and more are on the way. It is not just that things are changing; indeed, they always have. It is that they are changing in ways previously unimaginable to scientists, business leaders, policy makers, and citizens alike. In the scientific community, terms like surprise (which now has a technical definition), threshold (as in, "cross that threshold and your environment is completely different"), irreversibility (there is no going back, no recovery), nonsubstitutability (things like an atmosphere and water cannot be replaced), unprecedented rates of change (trends of the past are poor indicators of the present, let alone the future), and that allpurpose, ever-popular crisis (both fast and slow): these terms are now commonplace. This is not alarmism; it is a reflection of many people's struggle to fathom fundamental shifts, changes for which there are few if any precedents, and thus unimaginable, and for which appropriate social responses are equally unprecedented and unimaginable. So, for example, bark beetles, once restricted to two-year cycles by winter cold, are now reproducing annually. It is not just that they are devastating broad swaths of Rocky Mountain forests but that those forests may never recover. Frogs are disappearing worldwide. It is not just that it is a shame to lose species; species have always gone extinct, after all. It is that the mysteries of their disappearance, combined with their status as amphibian "canaries in the mineshaft," due to their thin porous skin, render conventional conservation irrelevant for frogs and perhaps also for a good many other terrestrial vertebrates. We cannot save one species at a time or even one habitat at a time when systemic instability is the issue. Sea levels are rising, already prompting island nations and other communities in low-lying areas to prepare to migrate. It is not that migrations have not occurred before, but that, with 6 billion people on earth, all the good places are taken. In these cases, and in so many more in the physical and biological realms, no one knows what to do, except proclaim more-of-the-same, only new and improved, greener and cleaner. Turning to the social realm, the shifts are murkier, more contested, and yet no less fundamental. A ISO-year "law" of oil supply says that when oil supplies are tight, prices go up, which stimulates investment, exploration, and technological innovation, bringing on more supply, all of which pushes prices back down. The cycle may take months or a few years, but it is a cycle, as inevitable as the business cycle itself, or the life cycle. Now, according to the International Energy Agency, the investments are not being made.2 And even a few mainstream commentators are violating a taboo: they are saying that world oil supply has peaked, or is about to, which is to say that all the cheap oil is gone. Whatever the case, hardly anyone predicts a return to cheap, abundant oil.

### 2AC—Prediction K

#### Predictions are feasible. They can be made logically from empirical evidence.

**Chernoff ‘9** (Fred, Prof. IR and Dir. IR – Colgate U., European Journal of International Relations, “Conventionalism as an Adequate Basis for Policy-Relevant IR Theory”, 15:1, Sage)

For these and other reasons, many social theorists and social scientists have come to the conclusion that prediction is impossible. Well-known IR reflexivists like Rick Ashley, Robert Cox, Rob Walker and Alex Wendt have attacked naturalism by emphasizing the interpretive nature of social theory. Ashley is explicit in his critique of prediction, as is Cox, who says quite simply, ‘It is impossible to predict the future’ (Ashley, 1986: 283; Cox, 1987: 139, cf. also 1987: 393). More recently, Heikki Patomäki has argued that ‘qualitative changes and emergence are possible, but predictions are not’ defective and that the latter two presuppose an unjustifiably narrow notion of ‘prediction’.14 A determined prediction sceptic may continue to hold that there is too great a degree of complexity of social relationships (which comprise ‘open systems’) to allow any prediction whatsoever. Two very simple examples may circumscribe and help to refute a radical variety of scepticism. First, we all make reliable social predictions and do so with great frequency. We can predict with high probability that a spouse, child or parent will react to certain well-known stimuli that we might supply, based on extensive past experience. More to the point of IR prediction – scepticism, we can imagine a young child in the UK who (perhaps at the cinema) (1) picks up a bit of 19th-century British imperial lore thus gaining a sense of the power of the crown, without knowing anything of current balances of power, (2) hears some stories about the US–UK invasion of Iraq in the context of the aim of advancing democracy, and (3) hears a bit about communist China and democratic Taiwan. Although the specific term ‘preventative strike’ might not enter into her lexicon, it is possible to imagine the child, whose knowledge is thus limited, thinking that if democratic Taiwan were threatened by China, the UK would (possibly or probably) launch a strike on China to protect it, much as the UK had done to help democracy in Iraq. In contrast to the child, readers of this journal and scholars who study the world more thoroughly have factual information (e.g. about the relative military and economic capabilities of the UK and China) and hold some cause-and-effect principles (such as that states do not usually initiate actions that leaders understand will have an extremely high probability of undercutting their power with almost no chances of success). Anyone who has adequate knowledge of world politics would predict that the UK will not launch a preventive attack against China. In the real world, China knows that for the next decade and well beyond the UK will not intervene militarily in its affairs. While Chinese leaders have to plan for many likely — and even a few somewhat unlikely — future possibilities, they do not have to plan for various implausible contingencies: they do not have to structure forces geared to defend against specifically UK forces and do not have to conduct diplomacy with the UK in a way that would be required if such an attack were a real possibility. Any rational decision-maker in China may use some cause-and-effect (probabilistic) principles along with knowledge of specific facts relating to the Sino-British relationship to predict (P2) that the UK will not land its forces on Chinese territory — even in the event of a war over Taiwan (that is, the probability is very close to zero). The statement P2 qualifies as a prediction based on DEF above and counts as knowledge for Chinese political and military decision-makers. A Chinese diplomat or military planner who would deny that theory-based prediction would have no basis to rule out extremely implausible predictions like P2 and would thus have to prepare for such unlikely contingencies as UK action against China. A reflexivist theorist sceptical of ‘prediction’ in IR might argue that the China example distorts the notion by using a trivial prediction and treating it as a meaningful one. But the critic’s temptation to dismiss its value stems precisely from the fact that it is so obviously true. The value to China of knowing that the UK is not a military threat is significant. The fact that, under current conditions, any plausible cause-and-effect understanding of IR that one might adopt would yield P2, that the ‘UK will not attack China’, does not diminish the value to China of knowing the UK does not pose a military threat. A critic might also argue that DEF and the China example allow non-scientific claims to count as predictions. But we note that while physics and chemistry offer precise ‘point predictions’, other natural sciences, such as seismology, genetics or meteorology, produce predictions that are often much less specific; that is, they describe the predicted ‘events’ in broader time frame and typically in probabilistic terms. We often find predictions about the probability, for example, of a seismic event in the form ‘some time in the next three years’ rather than ‘two years from next Monday at 11:17 am’. DEF includes approximate and probabilistic propositions as predictions and is thus able to catagorize as a prediction the former sort of statement, which is of a type that is often of great value to policy-makers. With the help of these ‘non-point predictions’ coming from the natural and the social sciences, leaders are able to choose the courses of action (e.g. more stringent earthquake-safety building codes, or procuring an additional carrier battle group) that are most likely to accomplish the leaders’ desired ends. So while ‘point predictions’ are not what political leaders require in most decision-making situations, critics of IR predictiveness often attack the predictive capacity of IR theory for its inability to deliver them. The critics thus commit the straw man fallacy by requiring a sort of prediction in IR (1) that few, if any, theorists claim to be able to offer, (2) that are not required by policy-makers for theory-based predictions to be valuable, and (3) that are not possible even in some natural sciences.15 The range of theorists included in ‘reflexivists’ here is very wide and it is possible to dissent from some of the general descriptions. From the point of view of the central argument of this article, there are two important features that should be rendered accurately. One is that reflexivists reject explanation–prediction symmetry, which allows them to pursue causal (or constitutive) explanation without any commitment to prediction. The second is that almost all share clear opposition to predictive social science.16 The reflexivist commitment to both of these conclusions should be evident from the foregoing discussion.

### 2AC—Nuclear K

**No prior questions.**

**Owen 2** (David, Reader of Political Theory at the University of Southampton, Reader of Political Theory at the Univ. of Southampton, Millennium Vol 31 No 3 p. 655-657)

Commenting on the ‘philosophical turn’ in IR, Wæver remarks that ‘[a] frenzy for words like “epistemology” and “ontology” often signals this philosophical turn’, although he goes on to comment that these terms are often used loosely.4 However, loosely deployed or not, it is clear that debates concerning ontology and epistemology play a central role in the contemporary IR theory wars. In one respect, this is unsurprising since it is a characteristic feature of the social sciences that periods of disciplinary disorientation involve recourse to reflection on the philosophical commitments of different theoretical approaches, and there is no doubt that such reflection can play a valuable role in making explicit the commitments that characterise (and help individuate) diverse theoretical positions. Yet, such a philosophical turn is not without its dangers and I will briefly mention three before turning to consider a confusion that has, I will suggest, helped to promote the IR theory wars by motivating this philosophical turn. The first danger with the philosophical turn is that it has an inbuilt tendency to prioritize 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 commitme

nts. 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 sciencesince ‘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.

**Reps don't shape reality.**

**Tuathail 96** (Gearoid, Department of Georgraphy at Virginia Polytechnic Institute, Political Geography, 15(6-7), p. 664, science direct)

While theoretical debates at academic conferences are important to academics, the discourse and concerns of foreign-policy decision- makers are quite different, so different that they constitute a distinctive problem- solving, theory-averse, policy-making subculture. There is a danger that academics assume that the discourses they engage are more significant in the practice of foreign policy and the exercise of power than they really are. This is not, however, to minimize the obvious importance of academia as a general institutional structure among many that sustain certain epistemic communities in particular states. In general, I do not disagree with Dalby’s fourth point about politics and discourse except to note that his statement-‘Precisely because reality could be represented in particular ways political decisions could be taken, troops and material moved and war fought’-evades the important question of agency that I noted in my review essay. The assumption that it is representations that make action possible is inadequate by itself. Political, military and economic structures, institutions, discursive networks and leadership are all crucial in explaining social action and should be theorized together with representational practices. Both here and earlier, Dalby’s reasoning inclines towards a form of idealism. In response to Dalby’s fifth point (with its three subpoints), it is worth noting, first, that his book is about the CPD, not the Reagan administration. He analyzes certain CPD discourses, root the geographical reasoning practices of the Reagan administration nor its public-policy reasoning on national security. Dalby’s book is narrowly textual; the general contextuality of the Reagan administration is not dealt with. Second, let me simply note that I find that the distinction between critical theorists and post- structuralists is a little too rigidly and heroically drawn by Dalby and others. Third, Dalby’s interpretation of the reconceptualization of national security in Moscow as heavily influenced by dissident peace researchers in Europe is highly idealist, an interpretation that ignores the structural and ideological crises facing the Soviet elite at that time. Gorbachev’s reforms and his new security discourse were also strongly self- interested, an ultimately futile attempt to save the Communist Party and a discredited regime of power from disintegration. The issues raised by Simon Dalby in his comment are important ones for all those interested in the practice of critical geopolitics. While I agree with Dalby that questions of discourse are extremely important ones for political geographers to engage, there is a danger of fetishizing this concern with discourse so that we neglect the institutional and the sociological, the materialist and the cultural, the political and the geographical contexts within which particular discursive strategies become significant. Critical geopolitics, in other words, should not be a prisoner of the sweeping ahistorical cant that sometimes accompanies ‘poststructuralism nor convenient reading strategies like the identity politics narrative; it needs to always be open to the patterned mess that is human history.

The distinction between means and ends is a meaningless moral cop-out—assessing comparative risks is the only ethical decision-making model.

Saul D. Alinsky, Famous Radical Organizer, 1971 (“Of Means and Ends,” *Rules For Radicals: A Pragmatic Primer For Realistic Radicals*, Published By Vintage Books, ISBN 0679721134, p. 24-27)

We cannot think first and act afterwards. From the moment of birth we are immersed in action and can only fitfully guide it by taking thought. -- Alfred North Whitehead

That perennial question, "Does the end justify the means?" is meaningless as it stands; the real and only question regarding ethics of means and ends is, and always has been, "Does this particular end justify this particular means?"

Life and how you live it is the story of means and ends. The *end* is what you want, and the *means* is how you get it. Whenever we think about social change, the question of means and ends arises. The man of action views the issue of means and ends in pragmatic and strategic terms. He has no other problem; he thinks only of his actual resources and the possibilities of various choices of action. He asks of ends only whether they are achievable and worth the cost; of means, only whether they will work. To say that corrupt means corrupt the ends is to believe in the immaculate conception of ends and principles. The real arena is corrupt and bloody. Life is a corrupting process from the time a child learns to play his mother off against his father in the politics of when to go to bed; he who fears corruption fears life.

The practical revolutionary will understand Goethe's "conscience is the virtue of observers and not of agents of action"; in action, one does not always enjoy the luxury of a decision that is consistent both with one's individual conscience and the good of mankind. The choice must always be for the latter. Action is for mass salvation and not for the individual's personal salvation. He who sacrifices the mass good for his personal conscience has a peculiar conception of "personal salvation"; he doesn't care enough for people to be "corrupted" for them.

The men who pile up the heaps of discussion and literature on the ethics of means and ends - which with rare exception is conspicuous for its sterility - rarely write about their own experiences in the perpetual struggle of life and change. They are strangers, moreover, to the burdens and problems of operational responsibility and the unceasing pressure for immediate decisions. They are passionately committed to a mystical objectivity where passions are suspect. They assume a nonexistent situation where men dispassionately and with reason draw and devise means and ends as if studying a navigational chart on land. They can be recognized by one of two verbal brands: "We agree with the ends but not the means," or "This is not the time." *The means-and-end moralists or non-doers always wind up on their ends without any means.*

The means-and-ends moralists, constantly obsessed with the ethics of the means used by the Have-Nots against the Haves, should search themselves as to their real political position. In fact, they are passive - but real - allies of the Haves. They are the ones Jacques Maritain referred to in his statement, "The fear of soiling ourselves by entering the context of history is not virtue, but a way of escaping virtue." These non-doers were the ones who chose not to fight the Nazis in the only way they could have been fought; they were the ones who drew their window blinds to shut out the shameful spectacle of Jews and political prisoners being dragged through the streets; they were the ones who privately deplored the horror of it all - and did nothing. This is the nadir of immorality. The most unethical of all means is the non-use of any means. It is this species of man who so vehemently and militantly participated in that classically idealistic debate at the old League of Nations on the ethical differences between defensive and offensive weapons. Their fears of action drive them to refuge in an ethics so divorced from the politics of life that it can apply only to angels, not to men. The standards of judgment must be rooted in the whys and wherefores of life as it is lived, the world as it is, not our wished-for fantasy of the world as it should be.

**Inevitable --- nuclear power.**

**Adnani 6/7** (Amir, Founder of Uranium Energy Corp. and has served as the president, CEO and a director since 2005, Under his leadership, Uranium Energy has become North America’s newest uranium-producing company and the first uranium producer in the U.S. in more than seven years. The company has achieved its prime status, including the broad support of major securities analysts and institutional investors, due in large part to Adnani’s early and continuing focus on bringing many of the uranium industry’s most experienced technical personnel into management, *Uranium Investing – Why Nuclear Power Has A Bright Future*, http://oakshirefinancial.com/2012/06/07/uranium-investing-why-nuclear-power-has-a-bright-future/)

If you asked Amir Adnani, chief executive of Uranium Energy Corp., why he was so bullish about uranium in 2007, his answer would be the same as it is today: There is not enough supply to meet demand. Investors might wonder if Fukushima has drawn the curtain on this industry, but Adnani says in this exclusive interview with The Energy Report that this is just the first act for nuclear power. Adnani is taking advantage of what he sees as a once-in-a-lifetime opportunity to grow his Texas-based company, snapping up properties that are now “on sale.”

The Energy Report: More than a year after a tsunami left the Fukushima nuclear reactor in Japan without the ability to sufficiently cool itself, Japan shut down the Tomari 3 nuclear reactor, leaving all 44,200 megawatts (MW) of the country’s nuclear capacity idle with no set date for restart. When investors hear news like that, they might get the impression that nuclear power is a sunset industry. What’s your take?

Amir Adnani: There is no doubt that the nuclear disaster in Japan has been one of the more challenging events facing the industry. Although just a couple weeks after those reactors were taken off-line, a town with two reactors in the western prefecture of Fukui voted in favor of restoring operations. Prime Minister Yoshihiko Noda and the federal government now have to make the final decision and several media outlets are reporting that the government may order the restart of two reactors next week. Many industry observers and analysts are expecting about 20–30 of the reactors to come back on-line over the course of the next year.

Japan is very much dependent on nuclear power. About one-third of Japanese electricity was generated through nuclear power prior to Fukushima. As recently as this February, major industries, like Japan’s steelmakers, have been urging the early restart of nuclear power plants. They fear potential power cuts and the rising costs associated with electricity from fossil fuels could affect their viability. Japan is a major export economy and has very energy-intensive industries to maintain and run competitively. Nuclear power will ultimately, in my opinion, be part of the energy mix in Japan. With time, we’ll see plants come back on-line.

TER: Is that enough to assuage investor concerns? What about what’s happened in Germany, Switzerland and some other European nations that have curtailed energy produced by nuclear reactors?

AA: Certainly investors have sold off uranium holdings based on the situation in Japan and I believe there was both an emotional and political knee-jerk reaction toward the industry. However, if we **take a closer look** at this through a sober vantage point, the effects of Germany phasing its reactors offline by 2022 is not nearly as material as the flip side of it: There remains **significant nuclear growth** in developing markets. Led by China and India, countries like Russia, South Korea and even oil-rich nations like Saudi Arabia and the **U**nited **A**rab **E**mirates are planning to build reactors that would nearly double the world’s installed nuclear capacity by 2030. These countries continue to see nuclear power’s unique ability to generate baseload power in a carbon dioxide-free and low-cost way as a very big advantage in their energy mix.

TER: Where is the growth for nuclear in a post-Fukushima world going to come from?

AA: The growth in the nuclear industry is going to come from exactly where it was going to come from pre-Fukushima. The countries and the economies that are expanding most rapidly are the ones that really need more power. The growth isn’t going to come from the West. In fact, only 3% of the reactors that are under construction right now—there are about 65 reactors under construction—are in G7 countries. The top four markets are China, Russia, India and South Korea. Saudi Arabia plans to build 16 nuclear reactors, which is a $400 billion program. Chinese officials have reiterated the country’s plans to grow its nuclear capacity to about 70 gigawatts (GW) by 2020. India plans to get to about 60–63 GW of installed nuclear capacity by 2030 and it further aims to supply 25% of electricity from nuclear power by 2050.

The plans to develop nuclear power in China and other countries are very much driven by a set of realities that is very different and very acute. People are dying every year in China, literally choking to death, because of all of the nasty toxins that are being put into the environment by burning coal. It takes a lot of infrastructure to get coal into various places in China where some of that infrastructure doesn’t exist yet. No other form of power can match nuclear power’s ability to generate electricity in a low-cost, emission-free manner on a baseload scale.

Having said that, there is incremental growth in the developed world, too. The U.S. Nuclear Regulatory Commission approved four licenses earlier this year for operating nuclear reactors to come on-line in Georgia and South Carolina. They are the first licenses of this type to be issued in the U.S. in almost 30 years. Even in the United Kingdom there have been announcements to build seven or eight new nuclear reactors. It is very positive to see those developments post-Fukushima.

**Especially in Asia.**

**Peimani 11** (Hooman, Member of the Journal of Energy Security Editorial Advisory Board and is the Head of the Energy Security Division at the Energy Studies Institute, National University of Singapore, *Nuclear Energy in Asia: A Post-Fukushima Perspective*, Journal of Energy Security, May 2011)

On March 11, 2011 a massive earthquake and accompanying tsunami devastated a significant part of coastal mainland Japan north of Tokyo. The loss of over 25,000 lives and major damage to residential, commercial and industrial parts of Japan have been overshadowed by round-the-clock news coverage concerning the accident at the Fukushima nuclear power plant. Exaggerated accident reports have prompted a debate on the wisdom of nuclear power generation. Thus, they have created a sentiment in Europe and North America discouraging expansion of their nuclear power sectors and encouraging a debate for their scaling down and eventual decommissioning.

These developments will not likely have a significant impact on the expansion of the nuclear power sector in Asia. In fact the Asia-Pacific region is the principle region for new global nuclear reactor projects. The Asian continent is determined to continue expanding its nuclear sector despite the Fukushima accident. The fundamental factors demanding the expansion of the nuclear sector in the pre-Fukushima period are still valid today across Asia; they will likely continue to remain so into the foreseeable future, ensuring Asia’s global rank as the main arena for new nuclear power facility development.

Reports on the Fukushima accident have portrayed it as another Chernobyl. This unrealistic picture has been the result of various factors and has helped create fear among many people regarding the accident’s negative effect on human health and safety. Hence, it is important to make a distinction between the myth and the reality of the Fukushima accident in order to understand why Asia will remain committed to its nuclear projects despite the accident.

Background

The Fukushima Nuclear Power Plant (FNPP) consisted of six reactors, three of which were inactive at the time of the natural disasters. The other three were successfully shut off when the earthquake shook the facility. The plant survived an unprecedented 9.1 magnitude earthquake only to be damaged by the accompanying tsunami. The tsunami damaged the cooling system and its backup-systems, which caused reactor overheating and subsequently the explosion of built-up hydrogen within the facility (but not the explosion of the rectors’ cores containing fuel rods). The existence of containment structures around the cores prevented massive leakage of radioactive material into the environment. This is unlike Chernobyl when the explosion of its core lacking an appropriate containment structure released a large amount of radioactive smoke into the atmosphere. The released (massive) amount of radiation hovered over the surrounding region and eventually drifted into European parts of then the Soviet Union as well as into other parts of Europe. The FNPP’s containment structures prevented a similar release of radioactive material, but a leak through the cooling system led to release of such material estimated to be about 10% of that of Chernobyl in a much smaller area in the FNPP’s vicinity.

To date, neither the Japanese nuclear authorities nor the International Atomic Energy Agency (IAEA) have reported any deaths, injuries or medical complications caused by radiation exposure among the Japanese population. As a precautionary measure, Japanese authorities evacuated people living in the affected area (a 20 km radius extended in certain areas) and banned the distribution of vegetables and dairy products produced there after above-normal measures of radiation were detected. While clean-up will take a long time (possibly decades in the immediately affected regions), the accident now seems to be under control. To this date, measurements of radiation in Japan and elsewhere have not detected high levels of radiation dangerous to health. As a result, the Fukushima accident is not a case on par with Chernobyl although it has been significant enough to raise public concerns.

Asian nuclear projects

After decades of decline, certain factors have contributed to renewed interest in nuclear energy as a substitute for fossil energy across Asia, in particular in the Asia-Pacific region which has a fast-growing demand for energy. These factors include the severity of air pollution, global warming (caused mainly by CO2 emitted by fossil fuels) and a heavy reliance on imported oil and to a lesser extent gas with potential economic, financial and political implications for importing nations. This has lead to a recognized need to diversify the region’s energy mix. The absence of nuclear-related disasters since Chernobyl has mainly calmed legitimate concerns about the potential safety of nuclear energy.

Asia’s revival of interest in nuclear energy has manifested itself in about **100 nuclear projects** of various scales. All of these are either under consideration, have already been negotiated and signed off on, or close to implementation. **China** accounts for the bulk of these projects; it has the largest number of ongoing projects worldwide (24). China is followed by South Korea (6) and India (4). However, there are many others, including Taiwan (2), Pakistan (1) and Japan (1). Other nuclear enthusiasts include Iran, which, despite UN sanctions, finally completed its Bushehr Nuclear Reactor (1000 MW) on 21 August 2010 with Russian assistance. Work continues in Iran on the 360 MW Darkhovin nuclear plant in its Khuzestan Province, and it has also announced plans for other Iranian-designed medium-sized nuclear power plants. Iran has a plan to build enough nuclear capacity to generate 20,000 MW of power over the next 20 years. To put this in perspective this will require constructing 19 more reactors on the scale of Bushehr. In Southeast Asia, Vietnam has embarked on constructing a power plant consisting of four nuclear reactors (4 X 1000 MW light water reactors) with the assistance of Russia (for two reactors) and Japan (for the other two). Preliminary work has started on one Russian reactor scheduled for completion in 2020.

Asian reaction to the Fukushima accident

Fukushima has created a sense of panic in many parts of the world. This is especially true in North America and Europe, which have not been major nuclear enthusiasts for decades. The major exception to this has been France, which produces about 75% of its electricity from nuclear reactors. In the Asia-Pacific region, there is no indication of serious plans to reverse the regional nuclear power program or to downsize it.

Regional countries with active nuclear sectors or serious plans for building them in the region have mainly confined themselves to taking precautionary measures to increase the safety of their programs to appease their respective peoples’ concerns. Hence, contrary to the situation in North America and Europe, all of the mentioned Asian countries have remained committed to the continuity of their nuclear programs despite Fukushima. The main reasons for such commitments include a lack of adequate domestic fossil energy resources leading to a heavy reliance on imported fossil energy (oil, gas and/or coal). Other reasons include the financial, economic, political and security implications of such reliance for net energy importers, a rapid depletion of fossil energy-rich countries’ domestic reserves, a need for the diversification of the energy mix in Asian countries and the necessity to decrease greenhouse gas emissions to curb global warming.

A commitment to nuclear energy is evident in the following summary of the reaction to the Fukushima accident in Asia-Pacific region.

**Turn --- tribal development --- nuclear waste disposal is essential to tribal economic development.**

**Grover 92** (\*Kevin – Partner, Gover, Stetson & Williams, P.C., Albuquerque, New Mexico \*\*Jana L, Walker – Associate, Gover, Stetson & Willims, P.C., Albuquerque, New Mexico, *Escaping Environmental Paternalism: One Tribe’s Approach to Developing a Commercial Waste Disposal Project in Indian Country*, http://faculty.virginia.edu/ejus/ESCAPE.htm)

The second and more controversial issue facing tribes involves the use of reservation lands as sites for commercial solid and hazardous waste disposal facilities. Looking at the waste industry as a form of **economic development**, in many respects it can be a good match for tribal communities. The industry is usually willing to pay the costs of developing new projects without requiring a tribe to put any **cash up front**. Since most tribes just do not have the money to independently fund large-scale economic development, this makes the industry attractive to Indian communities desperate for development. The waste industry needs isolation and an abundance of land, and, again, because of the overall lack of tribal economic development, **undeveloped land** is a resource that many tribes have. The waste industry also provides numerous opportunities for unskilled and semi-skilled workers, including training in the construction and environment compliance fields. On most reservations, **unemployment** is extremely high and opportunities for training Indians very limited. Finally, the waste industry is and must be recognized as an indispensable and legitimate part of the **services sector** of the economy, and as such, can be an extremely profitable form of development for tribes. All of this means that, under certain circumstances, a solid or hazardous waste disposal project may represent a viable and appropriate form of industrial development for some tribes and can provide **extraordinary opportunities** for economic development on some reservations. It is not appropriate for every community, and we certainly are not urging tribes to site waste facilities on their reservations. Each tribe must decide for itself if it is interested in such development. Our intent is merely to put things in a more honest perspective and to describe one process that, when and if a tribe seriously considers a commercial waste proposal, it can use to evaluate the proposal effectively and, if it's feasible, plan for its development.

**That turns their impact --- its necessary to provide a basic standard of living and escape economic domination.**

**Collins 93** (\*Nancy B. – Currently living in North Carolina and writing on Native American environmental issues and African American/Native American relations. From 1989 to 1993 she was an Assistant Professor of Law, University of Richmond School of Law and had served as a Trial Attorney in the Environmental Enforcement Section and in the Torts Branch of the U.S. Department of Justice. B.S. Bowling Green State University, 1965; M.S. Purdue University, 1968; J.D. DePaul University College of Law, 1975, \*\*Andrea Hall – B.A. Trinity University, 1988; J.D. University of Richmond, 1993, Nuclear Waste in Indian Country: A Paradoxical Trade, 12 Law & Ineq. 267 1993-1994)

Third, the nuclear waste trade presents a pivotal paradox for Native American peoples: the clash between the nuclear waste trade's potential for economic development and self-determination, and its antithetical potential for destruction of Indian land, har- mony, values, and even tribal existence. The essence of a tribe's sovereignty is land-based.37 By contrast, dominant American soci- ety is essentially nomadic. If land is destroyed or devalued, or if the economy of an area is weakened, other Americans simply move to greener pastures. For non-Indians, legal rights are not dependant upon the existence of a homeland. For a tribe to survive, many of its members must remain on the reservation and the tribe must maintain enough jobs to employ the next generation on the reservation.38 If Indian land is rendered uninhabitable or economically unproductive, the tribe becomes homeless.39 The land-based sovereignty of Indian nations is the key to both the need for economic development from the waste trade and the countervailing potential for the destruction of sovereign lands and peoples. Compensation for accepting nuclear waste could provide an Indian nation with **economic strength**, income for **education** and **health-care**, and **jobs** for the next generation. 40 These are tools for self-determination and are **necessary** for tribes to **escape economic domination** by the U.S. government, to regain tribal power, and to preserve the tribe for future generations. Many see the nuclear waste trade as a basis for attracting industry and for strengthening the tribal infrastructure. 4 1 Moreover, the government promises that the waste will be safe; 4 2 and promises that it will be removed in 40 years.43

#### Radition --- its inevitable

#### This improves health and longevity. Experimental evidence proves.

**Parsons Foundation Professor of Biology ‘3** (Peter, La Trobe U., Biogerontology, “Energy, stress and the invalid linear no-threshold premise: a generalization illustrated by ionizing radiation”, 4: 227-231, Springer)

These various agents occur in our environment, so that evolutionary adaptation to them should give hormesis. For many agents present throughout geological time, such as the heavy metals mercury, lead and uranium, hormetic maxima occur close to the origin because they are exceedingly toxic at high exposures. Similarly, ionizing radiation should give a hormetic zone with the maximum close to the origin since all life on earth is exposed to low levels of background ionizing radiation mainly less than 10 mSv y−1. Therefore the LNT premise for ionizing radiation is conceptually impossible on evolutionary grounds since background radiation is universal, so that the hormetic zone should reflect the radiation exposure to which organisms are normally exposed in their habitats (Parsons 2000). Radiation hormesis has been documented in experimental organisms ranging from protozoans to mammals. In some early experiments with the insect Drosophila melanogaster, longevity was reduced in a lead shielding device compared with background exposures (Planel and Giess 1973; Giess and Planel 1973). This was followed by experiments on protozoans, where lower fitness was found close to zero radiation in a lead shielding device than at somewhat higher exposure levels including background (Planel et al. 1987). Furthermore, this hormetic effect can be induced artificially within the lead shielding device by adding appropriate radionuclides. A few additional suggestive examples incorporating exposures below background appear in Luckey (1991). Human demographic data are insufficiently precise to detect effects at such low exposures, hence the LNT premise is often assumed partly because of simplistic expectations for radiation protection criteria. On the other hand, there are many examples consistent with radiation hormesis at exposures greater than background to levels that are substantially above exposures from geological outliers (where no radiation-linked deleterious effects have been detected). In addition, a recent study of the life span of mice measured the survival time for 50% of mouse populations, which was 22.6% higher than the controls following trials with exposures of 70 and 140 mSv y−1 of radiation////

(Caratero et al. 1998). These exposures are at the lower end of the range of intense experimental exposures of up to 800 mSv found to increase fitness measured by longevity in mice, rats and guinea pigs often by more than 20% (Luckey 1991; Calabrese and Baldwin 2000). Can hormesis at these apparently stressful exposures be explained? At the time Parsons (1990) was published there were plenty of observations consistent with this conclusion, but acceptance of it was hindered by a lack of underlying models to explain it and which could be tested empirically. The energy approach suggests a model to explain radiation hormesis to exposures beyond background. Assume that metabolic reserves, in particular heat shock proteins, hsps, are built up to counter the energy costs of the wide array of stresses including temperature extremes to which all organisms are exposed, of which radiation is normally a minor component. That is, the hormetic response becomes part of a general stress response involving hsps adaptations across stress levels and environmental agents (Minois 2000; Le Bourg et al. 2001). Therefore hsps should underlie cross-protection among various environmental agents. For example, in adapting to extreme temperatures, cross-protection could occur with respect to other agents, including radiation. The expectation is a form of radiation hormesis which depends upon the energy consequences of the totality of all environmental stresses of natural habitats, of which background radiation is a minor component compared with temperature extremes. I define this to be stress-derived radiation hormesis (Parsons 1999, 2000). Based upon the universality of stressful environments, radiation hormesis appears therefore to have two components. The smaller component is background radiation hormesis from the direct adaptation of organisms to ionizing radiation in their habitats, and the larger is stress-derived radiation hormesis which derives from metabolic reserves evolving from and maintained as an adaptation of organisms to the extremes of the totality of environmental stresses through evolutionary time.

**The lack of an alternative prevents any substantive change.**

**McCormack 10** (Tara, Lecturer in International Politics at the University of Leicester and has a PhD in International Relations from the University of Westminster, *Critique, Security and Power: The political limits to emancipatory approaches*, page 59-61)

The claims made for the central role of the values of the theorist reveal the theoretical limits of critical and emancipatory theory today. Yet even good or critical theory has no agency, and only political action can lead to change. Theory does of course play an important role in political change. This must be the first step towards a critical engagement with contemporary power structures and discourses. In this sense, we can see that it is critical theory that really has the potential to solve problems, unlike problem-solving theory which seeks only to ensure the smooth functioning of the existing order. Through substantive analysis the critical theorist can transcend the narrow and conservative boundaries of problem-solving theory by explaining how the problematic arises. Unlike problem-solving theory, critical theory makes claims to be able to explain why and how the social world functions as it does, it can go beyond the ‘given framework for action’. The critical theorist must therefore be able to differentiate between facts (or social reality) and values, this ability is what marks the critical theorist apart from the traditional or problem-solving theorists, who cannot, because of their values and commitment to the existing social world, go beyond the ‘given framework for action’. If we cannot differentiate between our desires or values or norms (or our perspective, to put it in Cox’s terms) and actually occurring social and political and historical processes and relationships, it is hard to see how we can have a critical perspective (Jahn, 1998: 614). Rather, through abolishing this division we can no longer draw the line between what we would like and everything else, and thereby contemporary critical theories are as much of a dogma as problem-solving theories. Contemporary critical theorists are like **modern-day alchemists**, believing that they can transform the base metal of the unjust international order into a golden realm of equality and justice through their own words. For contemporary critical theorists, all that seems that the crucial step towards progress to a better world order is for the theorist to state that their theory is for the purposes of emancipation and a just world order. Hedley Bull, writing in the 1970s, made a trenchant critique of advocates of world government (addressing, at that time, Richard Falk and other participants in the World Order Models Project). Bull warned of the problems of abandoning any analysis of the social, political and economic order as it was. Bull argued that the advocate of world government simply projects his or her own normative desires without basis in any ‘real’ social and political systems and processes. The assumption seems to be that a different order would have none of the problems or injustices of the contemporary world order, simply because the **critical theorists say so**. In this respect, Bull, who most likely would not be considered a critical theorist by today’s critical theorists, in fact shows a greater insight than many contemporary critical theorists: The advocate of world government makes the tacit assumption that it is his own moral and political preferences that will be embodied in it; he conceives the world authority as a projection of his own ideas, that is powerful enough to sweep aside the obstacles which now exist to the realisation of them. But this is an **evasion of the issue///**

; the world government with which the states system has to be compared is one that would be subject to the factors making for injustice in the present world, not one arbitrarily decreed to be immune from them. (2002 [1977]: 280–281) In his criticism of constructivist theorist Alexander Wendt, Neufeld argues that because of Wendt’s supposedly positivist and objectivist commitments, Wendt’s theory may end up serving political agendas very different to those that Wendt might intend to support. For Neufeld, Wendt cannot ask the crucial critical question, what and whom is Wendt’s constructivism for? (2001: 133). However, Neufeld gets the problem exactly the wrong way round. The theoretical problem that Neufeld has identified in Wendt is actually one that lies at the heart of critical and emancipatory approaches. Because of the critical refusal to separate facts and values and the conflation between theory and political action there is no room to consider the way in which critical theory may serve **political and normative agendas** independent of their value commitments. Theorists, as human beings, naturally have certain values and normative commitments. These values and normative commitments of course direct one’s questions and research but contemporary critical theorists seem to assume that because their heart is in the right place their work is done. However, values cannot be a methodology for critical engagement with social reality. The core of contemporary critical and emancipatory approaches is an assertion of normative intent and a belief that this is a substantive part of critical work. In light of this assumption, accusations of normative idealism or even **fantasy theory** are reasonably justly earned. And whilst we might reject naïve empiricist claims that facts are just, to paraphrase EH Carr’s witty critique of such approaches, like fish lying on a fishmonger’s slab, ready and accessible with their meanings clear (Carr, 2001 [1961]: 18), none the less it must surely be fundamental to critical theory that it can go beyond the ‘given framework for action’ to establish the ‘facts’ or the real social relations that lie behind this framework that the problem-solving theorist takes to be a natural fact, an ontological reality. This entails an engagement with and substantive analysis of contemporary power structures and discourse. Yet the elevation of the values of the theorist to playing a central role in critical theory is problematic in terms of the commitments of critical and emancipatory theorists to challenge contemporary power structures and discourses. We have seen in the previous chapters that critical theorists are aiming their critique at an international security framework that is of less and less relevance today, whilst their critical prescriptions are more similar than otherwise to the discourses of powerful states and international institutions. Crucially, although critical and emancipatory theorists claim to absolutely focus on power they do not seem to engage with the **problematic implications** of their prescriptions in the contemporary context. The sovereign state as a form of political organisation is certainly limited and many of the critiques of the state are well made. However, the emancipatory potential of non-state forms or international organisations is something that can only be considered in a specific and social historical context, there is nothing intrinsically emancipatory about any form of organisation. As radical commentators such as Costas Douzinas (2007) or Danilo Zolo (2002 [2000]) have pointed out, ‘human rights’ or other forms of supposedly cosmopolitan post-sovereign political organisation can, in certain contexts, be used to enforce structures of power. Within critical and emancipatory approaches there is, to paraphrase Friedrich Kratochwil (2007: 36), a certain unrealised constitutive understanding which is abstract and idealised. Critical and emancipatory approaches have an abstract and idealised notion of emancipation and the political which is not, despite the claims of critical and emancipatory theorists whose main aim is to engage with the here and now and the exercise of contemporary power relations, grounded in the contemporary social and political international context. Emancipation in itself as a word or a concept or as a good intention cannot guarantee anything in the absence of political content. At worst it can **empower precisely those practices**, which critical theorists wish to resolve.

## \*\*\* 1AR

### AT: Climate K

**Our heuristic overcomes disbelief and mobilizes public responses.**

**Romm 12** (Joe Romm is a Fellow at American Progress and is the editor of Climate Progress, which New York Times columnist Tom Friedman called "the indispensable blog" and Time magazine named one of the 25 “Best Blogs of 2010.″ In 2009, Rolling Stone put Romm #88 on its list of 100 “people who are reinventing America.” Time named him a “Hero of the Environment″ and “The Web’s most influential climate-change blogger.” Romm was acting assistant secretary of energy for energy efficiency and renewable energy in 1997, where he oversaw $1 billion in R&D, demonstration, and deployment of low-carbon technology. He is a Senior Fellow at American Progress and holds a Ph.D. in physics from MIT., 2/26/2012, “Apocalypse Not: The Oscars, The Media And The Myth of ‘Constant Repetition of Doomsday Messages’ on Climate”, http://thinkprogress.org/romm/2012/02/26/432546/apocalypse-not-oscars-media-myth-of-repetition-of-doomsday-messages-on-climate/#more-432546)

The two greatest myths about global warming communications are 1) constant repetition of doomsday messages has been a major, ongoing strategy and 2) that strategy doesn’t work and indeed is actually counterproductive! These myths are so deeply ingrained in the environmental and progressive political community that when we finally had a serious shot at a climate bill, the powers that be decided not to focus on the threat posed by climate change in any serious fashion in their $200 million communications effort (see my 6/10 post “Can you solve global warming without talking about global warming?“). These myths are so deeply ingrained in the mainstream media that such messaging, when it is tried, is routinely attacked and denounced — and the flimsiest studies are interpreted exactly backwards to drive the erroneous message home (see “Dire straits: Media blows the story of UC Berkeley study on climate messaging“) The only time anything approximating this kind of messaging — not “doomsday” but what I’d call blunt, science-based messaging that also makes clear the problem is solvable — was in 2006 and 2007 with the release of An Inconvenient Truth (and the 4 assessment reports of the Intergovernmental Panel on Climate Change and media coverage like the April 2006 cover of Time). The data suggest that strategy measurably moved the public to become more concerned about the threat posed by global warming (see recent study here). You’d think it would be pretty obvious that the public is not going to be concerned about an issue unless one explains why they should be concerned about an issue. And the social science literature, including the vast literature on advertising and marketing, **could not be clearer that only repeated messages have any chance of sinking in and moving the needle**. Because I doubt any serious movement of public opinion or mobilization of political action could possibly occur until these myths are shattered, I’ll do a multipart series on this subject, featuring public opinion analysis, quotes by leading experts, and the latest social science research. Since this is Oscar night, though, it seems appropriate to start by looking at what messages the public are exposed to in popular culture and the media. It ain’t doomsday. Quite the reverse, climate change has been mostly an invisible issue for several years and the message of conspicuous consumption and business-as-usual reigns supreme. The motivation for this post actually came up because I received an e-mail from a journalist commenting that the “constant repetition of doomsday messages” doesn’t work as a messaging strategy. I had to demur, for the reasons noted above. But it did get me thinking about what messages the public are exposed to, especially as I’ve been rushing to see the movies nominated for Best Picture this year. I am a huge movie buff, but as parents of 5-year-olds know, it isn’t easy to stay up with the latest movies. That said, good luck finding a popular movie in recent years that even touches on climate change, let alone one a popular one that would pass for doomsday messaging. Best Picture nominee The Tree of Life has been billed as an environmental movie — and even shown at environmental film festivals — but while it is certainly depressing, climate-related it ain’t. In fact, if that is truly someone’s idea of environmental movie, count me out. The closest to a genuine popular climate movie was the dreadfully unscientific The Day After Tomorrow, which is from 2004 (and arguably set back the messaging effort by putting the absurd “global cooling” notion in people’s heads! Even Avatar, the most successful movie of all time and “the most epic piece of environmental advocacy ever captured on celluloid,” as one producer put it, omits the climate doomsday message. One of my favorite eco-movies, “Wall-E, is an eco-dystopian gem and an anti-consumption movie,” but it isn’t a climate movie. I will be interested to see The Hunger Games, but I’ve read all 3 of the bestselling post-apocalyptic young adult novels — hey, that’s my job! — and they don’t qualify as climate change doomsday messaging (more on that later). So, no, the movies certainly don’t expose the public to constant doomsday messages on climate. Here are the key points about what repeated messages the American public is exposed to: The broad American public is exposed to virtually no doomsday messages, let alone constant ones, on climate change in popular culture (TV and the movies and even online). There is not one single TV show on any network devoted to this subject, which is, arguably, more consequential than any other preventable issue we face. The same goes for the news media, whose coverage of climate change has collapsed (see “Network News Coverage of Climate Change Collapsed in 2011“). When the media do cover climate change in recent years, the overwhelming majority of coverage is devoid of any doomsday messages — and many outlets still feature hard-core deniers. Just imagine what the public’s view of climate would be if it got the same coverage as, say, unemployment, the housing crisis or even the deficit? When was the last time you saw an “employment denier” quoted on TV or in a newspaper? The public is exposed to constant messages promoting business as usual and indeed idolizing conspicuous consumption. See, for instance, “Breaking: The earth is breaking … but how about that Royal Wedding? Our political elite and intelligentsia, including MSM pundits and the supposedly “liberal media” like, say, MSNBC, hardly even talk about climate change and when they do, it isn’t doomsday. Indeed, there isn’t even a single national columnist for a major media outlet who writes primarily on climate. Most “liberal” columnists rarely mention it. At least a quarter of the public chooses media that devote a vast amount of time to the notion that global warming is a hoax and that environmentalists are extremists and that clean energy is a joke. In the MSM, conservative pundits routinely trash climate science and mock clean energy. Just listen to, say, Joe Scarborough on MSNBC’s Morning Joe mock clean energy sometime. The major energy companies bombard the airwaves with millions and millions of dollars of repetitious pro-fossil-fuel ads. The environmentalists spend far, far less money. As noted above, the one time they did run a major campaign to push a climate bill, they and their political allies including the president explicitly did NOT talk much about climate change, particularly doomsday messaging Environmentalists when they do appear in popular culture, especially TV, are routinely mocked. There is very little mass communication of doomsday messages online. Check out the most popular websites. General silence on the subject, and again, what coverage there is ain’t doomsday messaging. Go to the front page of the (moderately trafficked) environmental websites. Where is the doomsday? If you want to find anything approximating even modest, blunt, science-based messaging built around the scientific literature, interviews with actual climate scientists and a clear statement that we can solve this problem — well, you’ve all found it, of course, but the only people who see it are those who go looking for it. Of course, this blog is not even aimed at the general public. Probably 99% of Americans haven’t even seen one of my headlines and 99.7% haven’t read one of my climate science posts. And Climate Progress is probably the most widely read, quoted, and reposted climate science blog in the world. Anyone dropping into America from another country or another planet who started following popular culture and the news the way the overwhelming majority of Americans do would get the distinct impression that **nobody who matters is terribly worried about climate change**. And, of course, they’d be right — see “The failed presidency of Barack Obama, Part 2.” It is **total BS** that somehow the American public **has been scared and overwhelmed by repeated doomsday messaging into some sort of climate fatigue**. If the public’s concern has dropped — and public opinion analysis suggests it has dropped several percent (though is bouncing back a tad) — that is **primarily due to the conservative media’s disinformation** **campaign** impact on Tea Party conservatives and to the treatment of this as a nonissue by most of the rest of the media, intelligentsia and popular culture.

### 1AR—Framework

#### Method can’t be evaluated in a vacuum- to do so is useless

Mario Bunge, Treatise on basic Philosophy Vol 6: Epistemology and Methodology II: Understanding the world, 1983 p. 207

Tenth, the methodics of any science includes not only its peculiar techniques but also the scientific method (Ch. 7, Section 2.2). A collection of techniques, e.g. for producing high pressures or high vacua, or for measuring the effects of reinforcement on the learning of philosophy does not constitute a science: methods are means not ends, and they cannot be applied or evaluated apart from a problematics and an aim. Merely exploiting a given technique for obtaining or processing data without any ulterior purposes is not doing science but just keeping busy and possibly salaried.

### AT: Fear Bad

#### Fear appeals mobilize for action against nuclear war. And failure to discuss the consequences of nuclear war means the discussion gets dominated by trivial issues that lose focus on preventing war.

**Caldicott ’86** (Helen, MD, Founder – Women's Action for Nuclear Disarmament, Co-Founder – Physicians for Social Responsibility, and Lecturer – New School for Social Research on the Media, Global Politics and the Environment, Bulletin of the Atomic Scientists, “Helen Caldicott on Tactics”, May, Ebsco)

"A Historical View of Scare Tactics" by Paul Boyer, and "Scared Stiff or Scared into Action" by Peter Sandman and Jo- Ann Valenti— attributed the lack of vigor in the U.S. antinuclear movement at least in part to numbing induced by terror. And both mentioned me as a purveyor of "fear tactics?' These authors made no attempt to analyze the methods I use in a typical recruiting speech, or to interview my audiences or the activists I have recruited. I must therefore describe my approach, which has evolved from 15 years' experience and give my own reasons for the current decline in the movement. I have found that all audiences will respond positively to an address that incorporates the following subjects: • The medical and ecological consequences of nuclear war ("bombing run"). People need to know that the human race is facing extinction from "nuclear winter?' The description of a single nuclear explosion personalizes the events experienced by two populations in Ja-pan. My experience shows that if I omit this part of my talk, the question and answer period is dominated by trivial and irrelevant arguments over technical and numerical questions about hardware and the Soviet Union. • Military-industrial-political complex. The first part of the talk prepares the audience for the even more alarming facts about the deception of the public by their elected government and Admin-istration officials, as well as the mani-pulative control of both groups by the Pentagon and the powerful weapons- producing corporations; the complexi-ties of the new and destabilizing first- strike weapons, and doctrines such as that for nuclear war-fighting as enun-ciated in the Defense Department's five- year guidance plan; and the influence of the right-wing movement. My experience is that the audience is more shocked by this than by the "bombing run." • My talks always include my own personal rhapsody about the earth's plants and animals, and my love of life and of my fellow humans. I remind people of their own deep dedication to the welfare of their children and their hopes for the future. It is this which causes the most pain for audiences—the beauty, not the horror. They often cry. I explain that facing nuclear war and human ex-tinction is like being told you have cancer and may provoke a classical grieving response consisting of shock and disbelief, followed by depression, which may last for months. People often come out of the depression with energetic anger. This is what drives many activists who have finally accepted the dual reality: that we face extinction, and that the only viable response is to work like hell for our survival. Not everyone goes through these steps, but many of the most effective and devoted workers have. • Finally, I always emphasize that lit-erature is available and there are orga-nizations to join, petitions to sign, and lists of activities from which they can choose. I tell audiences that the therapy for despair is action and that they have a social obligation to work for the prevention of nuclear war. My experience, both in the practice of medicine dealing with catastrophic illness and in the prevention of nuclear war, is that people can respond magnificently to even the most horrible reality. But they cannot deal with half-truths, lies, or doubts. The deep hidden terror which this subject induces generates "psychic numbing;' and people are grateful and relieved when their fears are legitimized. In thousands of letters, and in meet-ings with people years later, no one has ever suggested that I have induced a state of permanent numbness. Anecdotal evidence from leaders of new movements such as Beyond War, Citizens Network, and Pro-Peace indicates that my method has recruited the majority of those who respond to their initiatives. This approach has also been a catalyst for the freeze movement and for such groups as Physicians for Social Responsibility (PSR), Women's Action for Nuclear Disarmament (WAND), and the organization that won the 1985 Nobel Peace Prize, International Physicians for the Prevention of Nuclear War.