# Round 1 aff v MSU RZ

## 1ac

### 1AC Plan – with S-PRISM

#### The United States federal government should substantially increase loan guarantees for integral fast reactors using the S-PRISM design.

### Proliferation

#### Advantage 1: Prolif

#### Nuclear power is inevitable – Inaction on IFRs is killing US leadership and ability to influence prolif

**Shuster 11** [Joseph Shuster, founder of Minnesota Valley Engineering and Chemical Engineer, 9-8-2011, "Response to Draft Report From Obama’s Blue Ribbon Commission (BRC) on America’s Nuclear Future dated July 29, 2011," Beyond Fossil Fools]

Contrary to the commission’s declarations on the matter, the U.S. is in danger of losing its once ¶ strong nuclear leadership. As a result we would have less to say about how nuclear materials are ¶ to be managed in the world and that could expose the U.S. to some inconvenient if not downright ¶ dangerous consequences. China is now building a large pilot plant said to be identical to our ¶ successful EBR-II plant that proved the design of the IFR. Meanwhile in the U.S. after complete ¶ success, EBR II was shut down, not for technical reasons but for political reasons during the ¶ Clinton administration, a decision destined to be one of the worst in our nation’s history.¶ Much of the world is already committed to a nuclear future with some countries eagerly waiting ¶ to license the American version of Generation IV Fast Reactors—the IFR. We still have the best ¶ IFR technology in the world but have squandered much of our lead, partly by allowing a largely ¶ unqualified commission two years of useless deliberation. What we really did was give our ¶ competitors an additional two years to catch up.

#### IFR restores leadership on nuclear issues – key to contain proliferation

**Stanford 10** (Dr George S. Stanford, nuclear reactor physicist, retired from Argonne National Laboratory, "IFR FaD context – the need for U.S. implementation of the IFR," 2/18/10) http://bravenewclimate.com/2010/02/18/ifr-fad-context/-http://bravenewclimate.com/2010/02/18/ifr-fad-context/

ON THE NEED FOR U.S. IMPLEMENTATION OF THE INTEGRAL FAST REACTOR¶ The IFR ties into a very big picture — international stability, prevention of war, and avoiding “proliferation” (spread) of nuclear weapons.¶ – The need for energy is the basis of many wars, including the ones we are engaged in right now (Iraq and Afghanistan). If every nation had enough energy to give its people a decent standard of living, that reason for conflict would disappear.¶ – The only sustainable energy source that can provide the bulk of the energy needed is nuclear power.¶ – The current need is for more thermal reactors — the kind we now use.¶ – But for the longer term, to provide the growing amount of energy that will be needed to maintain civilization, the only proven way available today is with fast-reactor technology.¶ – The most promising fast-reactor type is the IFR – metal-fueled, sodium-cooled, with pyroprocessing to recycle its fuel.¶ – Nobody knows yet how much IFR plants would cost to build and operate. Without the commercial-scale demo of the IFR, along with rationalization of the licensing process, any claims about costs are simply hand-waving guesses.¶ \* \* \* \*¶ Background info on proliferation (of nuclear weapons). Please follow the reasoning carefully.¶ – Atomic bombs can be made with highly enriched uranium (90% U-235) or with good-quality plutonium (bomb designers want plutonium that is ~93% Pu-239).¶ – For fuel for an LWR, the uranium only has to be enriched to 3 or 4% U-235.¶ – To make a uranium bomb you don’t need a reactor — but you do need access to an enrichment facility or some other source of highly enriched uranium…¶ – Any kind of nuclear reactor can be used to make weapons-quality plutonium from uranium-238, but the uranium has to have been irradiated for only a very short period. In other words, nobody would try to make a plutonium weapon from ordinary spent fuel, because there are easier ways to get plutonium of much better quality.¶ – Plutonium for a weapon not only has to have good isotopic quality, it also has to be chemically uncontaminated. Thus the lightly irradiated fuel has to be processed to extract the plutonium in a chemically pure form. But mere possession of a reactor is not sufficient for a weapons capability — a facility using a chemical process called PUREX is also needed.¶ – Regardless of how many reactors a country has, it cannot have a weapons capability unless it has either the ability to enrich uranium or to do PUREX-type fuel reprocessing.¶ – Therefore, the spread of weapons capability will be strongly inhibited if the only enrichment and reprocessing facilities are in countries that already have a nuclear arsenal.¶ – But that can only happen if countries with reactors (and soon that will be most of the nations of the world) have absolutely ironclad guarantees that they can get the fuel they need even if they can’t make their own, regardless of how obnoxious their political actions might be.¶ – Such guarantees will have to be backed up by some sort of international arrangement, and that can only come to pass if there is effective leadership for the laborious international negotiations that will have to take place. (For a relevant discussion, see here)¶ – At present, the only nation that has a realistic potential to be such a leader is the United States.¶ – But a country cannot be such a leader in the political arena unless it is also in the technological forefront.¶ – The United States used to be the reactor-technology leader, but it abandoned that role in 1994 when it terminated the development of the IFR.¶ – Since then, other nations — China, India, Japan, South Korea, Russia, France — have proceeded to work on their own fast-reactor versions, which necessarily will involve instituting a fuel-processing capability.¶ – Thus the United States is being left behind, and is rapidly losing its ability to help assure that the global evolution of the technology of nuclear energy proceeds in a safe and orderly manner.¶ – But maybe it’s not too late yet. After all, the IFR is the fast-reactor technology with the post promise (for a variety of reasons), and is ready for a commercial-scale demonstration to settle some uncertainties about how to scale up the pyroprocess as needed, to establish better limits on the expected cost of production units, and to develop an appropriate, expeditious licensing process.¶ – Such a demo will require federal seed money. It’s time to get moving.

#### Transition to IFRs create a global proliferation resistant fuel cycle

**Stanford 10** (Dr George S. Stanford, nuclear reactor physicist, retired from Argonne National Laboratory, "Q%26A on Integral Fast Reactors – safe, abundant, non-polluting power," 9/18/10) [http://bravenewclimate.com/2010/09/18/ifr-fad-7/-http://bravenewclimate.com/2010/09/18/ifr-fad-7/](http://bravenewclimate.com/2010/09/18/ifr-fad-7/-http%3A//bravenewclimate.com/2010/09/18/ifr-fad-7/)

Thermal reactors with reprocessing would do at least a little better.¶ Recycling (it would be with the PUREX process, or an equivalent) could stretch the U-235 supply another few decades—but remember the consequences: growing stockpiles of plutonium, pure plutonium streams in the PUREX plants, and the creation of 100,000-year plutonium mines.¶ If you’re going to talk about “PUREX” and “plutonium mines” you should say what they are. First, what’s PUREX?¶ It’s a chemical process developed for the nuclear weapons program, to separate plutonium from everything else that comes out of a reactor. Weapons require very pure plutonium, and that’s what PUREX delivers. The pyroprocess used in the IFR is very different. It not only does not, it cannot, produce plutonium with the chemical purity needed for weapons.¶ Why do you keep referring to “chemical” purity?¶ Because chemical and isotopic quality are two different things. Plutonium for a weapon has to be pure chemically. Weapons designers also want good isotopic quality—that is, they want at least 93% of their plutonium to consist of the isotope Pu- 239. A chemical process does not separate isotopes.¶ I see. Now, what about the “plutonium mines?”¶ When spent fuel or vitrified reprocessing waste from thermal reactors is buried, the result is a concentrated geological deposit of plutonium. As its radioactivity decays, those deposits are sources of raw material for weapons, becoming increasingly attractive over the next 100,000 years and more (the half-life of Pu-239 being 24,000 years).¶ You listed, back at the beginning, some problems that the IFR would ameliorate. A lot of those problems are obviously related to proliferation of nuclear weapons.¶ Definitely. For instance, although thermal reactors consume more fuel than they produce, and thus are not called “breeders,” they inescapably are prolific breeders of plutonium, as I said. And that poses serious concerns about nuclear proliferation. And proliferation concerns are even greater when fuel from thermal reactors is recycled, since the PUREX method is used. IFRs have neither of those drawbacks.¶ Why does it seem that there is more proliferation-related concern about plutonium than about uranium? Can’t you make bombs from either?¶ Yes. The best isotopes for nuclear explosives are U-235, Pu- 239, and U-233. Only the first two of those, however, have been widely used. All the other actinide isotopes, if present in appreciable quantity, in one way or another complicate the design and construction of bombs and degrade their performance. Adequate isotopic purity is therefore important, and isotopic separation is much more difficult than chemical separation. Even so, with plutonium of almost any isotopic composition it is technically possible to make an explosive (although designers of military weapons demand plutonium that is at least 93% Pu-239), whereas if U-235 is sufficiently diluted with U-238 (which is easy to do and hard to undo), the mixture cannot be used for a bomb.¶ High-quality plutonium is the material of choice for a large and sophisticated nuclear arsenal, while highly enriched uranium would be one of the easier routes to a few crude nuclear explosives.¶ So why the emphasis on plutonium?¶ You’re asking me to read people’s minds, and I’m not good at that. Both uranium and plutonium are of proliferation concern.¶ Where is the best place for plutonium?¶ Where better than in a reactor plant—particularly an IFR facility, where there is never pure plutonium (except some, briefly, when it comes in from dismantled weapons), where the radioactivity levels are lethal, and where the operations are done remotely under an inert, smothering atmosphere? Once enough IFRs are deployed, there never will need to be plutonium outside a reactor plant—except for the then diminishing supply of plutonium left over from decades of thermal-reactor operation.¶ How does the IFR square with U.S. policy of discouraging plutonium production, reprocessing and use?¶ It is entirely consistent with the intent of that policy—to render plutonium as inaccessible for weapons use as possible. The wording of the policy, however, is now obsolete.¶ How so?¶ It was formulated before the IFR’s pyroprocessing and electrorefining technology was known—when “reprocessing” was synonymous with PUREX, which creates plutonium of the chemical purity needed for weapons. Since now there is a fuel cycle that promises to provide far-superior management of plutonium, the policy has been overtaken by events.¶ Why is the IFR better than PUREX? Doesn’t “recycling” mean separation of plutonium, regardless of the method?¶ No, not in the IFR—and that misunderstanding accounts for some of the opposition. The IFR’s pyroprocessing and electrorefining method is not capable of making plutonium that is pure enough for weapons. If a proliferator were to start with IFR material, he or she would have to employ an extra chemical separation step.¶ But there is plutonium in IFRs, along with other fissionable isotopes. Seems to me that a proliferator could take some of that and make a bomb.¶ Some people do say that, but they’re wrong, according to expert bomb designers at Livermore National Laboratory. They looked at the problem in detail, and concluded that plutonium-bearing material taken from anywhere in the IFR cycle was so ornery, because of inherent heat, radioactivity and spontaneous neutrons, that making a bomb with it without chemical separation of the plutonium would be essentially impossible—far, far harder than using today’s reactor-grade plutonium.¶ So? Why wouldn’t they use chemical separation?¶ First of all, they would need a PUREX-type plant—something that does not exist in the IFR cycle.¶ Second, the input material is so fiendishly radioactive that the processing facility would have to be more elaborate than any PUREX plant now in existence. The operations would have to be done entirely by remote control, behind heavy shielding, or the operators would die before getting the job done. The installation would cost millions, and would be very hard to conceal.¶ Third, a routine safeguards regime would readily spot any such modification to an IFR plant, or diversion of highly radioactive material beyond the plant.¶ Fourth, of all the ways there are to get plutonium—of any isotopic quality—this is probably the all-time, hands-down hardest.¶ The Long Term¶ Does the plutonium now existing and being produced by thermal reactors raise any proliferation concerns for the long term?¶ It certainly does. As I said earlier, burying the spent fuel from today’s thermal reactors creates geological deposits of plutonium whose desirability for weapons use is continually improving. Some 30 countries now have thermal-reactor programs, and the number will grow. To conceive of that many custodial programs being maintained effectively for that long is a challenge to the imagination. Since the IFR can consume plutonium, it can completely eliminate this long-term concern.¶ Are there other waste-disposal problems that could be lessened?¶ Yes. Some constituents of the waste from thermal reactors remain appreciably radioactive for thousands of years, leading to 10,000-year stability criteria for disposal sites. Waste disposal would be simpler if that time frame could be shortened. With IFR waste, the time of concern is less than 500 years.¶ What about a 1994 report by the National Academy of Sciences? The Washington Post said that the NAS report “denounces the idea of building new reactors to consume plutonium.”¶ That characterization of the report is a little strong, but it is true that the members of the NAS committee seem not to have been familiar with the plutonium-management potential of the IFR. They did, however, recognize the “plutonium mine” problem. They say (Executive Summary, p.3):¶ Because plutonium in spent fuel or glass logs incorporating high-level wastes still entails a risk of weapons use, and because the barrier to such use diminishes with time as the radioactivity decays, consideration of further steps to reduce the long-term proliferation risks of such materials is required, regardless of what option is chosen for [near-term] disposition of weapons plutonium. This global effort should include continued consideration of more proliferation-resistant nuclear fuel cycles, including concepts that might offer a long-term option for nearly complete elimination of the world’s plutonium stocks. The IFR, obviously, is just such a fuel cycle—a prime candidate for “continued consideration.”

#### That institutional support manages global nonproliferation

**Bengelsdorf and McGoldrick**, **07** [currently a Principal with the consulting firm of Bengelsdorf, McGoldrick, and Associates, held numerous senior positions in the U.S. government, including the Energy Department and its predecessor agencies, the State Department, and the U.S. Mission to the IAEA. Among his appointments, he served as the director of both key State and Energy Department offices that are concerned with international nuclear and nonproliferation affairs. Throughout his career, Mr. Bengelsdorf contributed significantly to the development and implementation of U.S. international fuel cycle and nonproliferation policies, having participated in several White House and National Security Council studies. He was involved in the negotiation of numerous bilateral and multilateral nuclear and nonproliferation agreements, including the development of full-scope IAEA safeguards (INFCIRC/153) to implement the Nuclear, THE U.S. DOMESTIC CIVIL NUCLEAR INFRASTRUCTURE AND U.S. NONPROLIFERATION POLICY A White Paper Presented by the American Council on Global Nuclear Competitiveness May 2007, <http://www.nuclearcompetitiveness.org/images/COUNCIL_WHITE_PAPER_Final.pdf>]

The health of the U.S. civil nuclear infrastructure can have an important bearing in a variety of ways on the ability of the United States to advance its nonproliferation objectives. During the Atoms for Peace Program and until the 1970s, the U.S. was the dominant supplier in the international commercial nuclear power market, and it exercised a strong leadership role in shaping the global nonproliferation regime. In those early days, the U.S. also had what was essentially a monopoly in the nuclear fuel supply market. This capability, among others, allowed the U.S. to promote the widespread acceptance of nonproliferation norms and restraints, including international safeguards and physical protection measures, and, most notably, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The United States concluded agreements for cooperation in peaceful nuclear energy with other states, which require strict safeguards, physical protection and other nonproliferation controls on their civil nuclear programs. Today due to its political, military and economic position in the world, the United States continues to exercise great weight in nonproliferation matters. However, the ability of the United States to promote its nonproliferation objectives through peaceful nuclear cooperation with other countries has declined**.** The fact that no new nuclear power plant orders have been placed in over three decades has led to erosion in the capabilities of the U.S. civil nuclear infrastructure. Moreover, during the same period, the U.S. share of the global nuclear market has declined significantly, and several other countries have launched their own nuclear power programs and have become major international suppliers in their own right. It is highly significant that all but one of the U.S. nuclear power plant vendors and nuclear fuel designers and manufactures for light water reactors have now been acquired by their non-U.S. based competitors. Thus, while the U.S. remains a participant in the international market for commercial nuclear power, it no longer enjoys a dominant role as it did four decades ago. To the extent that U.S. nuclear plant vendors and nuclear fuel designers 2 and manufacturers are able to reassert themselves on a technical and commercial basis, opportunities for U.S. influence with respect to nuclear nonproliferation can be expected to increase. However, the fact that there are other suppliers that can now provide plants and nuclear fuel technology and services on a competitive commercial basis suggests that the U.S. will have to work especially hard to maintain and, in some cases, rebuild its nuclear infrastructure, if it wishes to exercise its influence in international nuclear affairs. The influence of the United States internationally could be enhanced significantly if the U.S. is able to achieve success in its Nuclear Power 2010 program and place several new orders in the next decade and beyond. There is a clear upsurge of interest in nuclear power in various parts of the world. As a consequence, if the U.S. aspires to participate in these programs and to shape them in ways that are most conducive to nonproliferation, it will need to promote the health and viability of the American nuclear infrastructure. Perhaps more importantly, if it wishes to exert a positive influence in shaping the nonproliferation policies of other countries, it can do so more effectively by being an active supplier to and partner in the evolution of those programs. Concurrent with the prospective growth in the use of nuclear power, the global nonproliferation regime is facing some direct assaults that are unprecedented in nature. International confidence in the effectiveness of nuclear export controls was shaken by the disclosures of the nuclear operations of A.Q. Khan. These developments underscore the importance of maintaining the greatest integrity and effectiveness of the nuclear export conditions applied by the major suppliers. They also underscore the importance of the U.S. maintaining effective policies to achieve these objectives. Constructive U.S. influence will be best achieved to the extent that the U.S. is perceived as a major technological leader, supplier and partner in the field of nuclear technology. As the sole superpower, the U.S. will have considerable, on-going influence on the international nonproliferation regime, regardless of how active and successful it is in the nuclear export market. However, the erosion of the U.S. nuclear infrastructure has begun to weaken the ability of the U.S. to participate actively in the international nuclear market. If the U.S. becomes more dependent on foreign nuclear suppliers or if it leaves the international 3 nuclear market to other suppliers, the ability of the U.S. to influence nonproliferation policy will diminish. It is, therefore, essential that the United States have vibrant nuclear reactor, enrichment services, and spent fuel storage and disposal industries that can not only meet the needs of U.S. utilities but will also enable the United States to promote effective safeguards and other nonproliferation controls through close peaceful nuclear cooperation with other countries. U.S. nuclear exports can be used to influence other states’ nuclear programs through the nonproliferation commitments that the U.S. requires. The U.S. has so-called consent rights over the enrichment, reprocessing and alteration in form or content of the nuclear materials that it has provided to other countries, as well as to the nuclear materials that are produced from the nuclear materials and equipment that the U.S. has supplied. Further, the ability of the U.S. to develop improved and advanced nuclear technologies will depend on its ability to provide consistent and vigorous support for nuclear R&D programs that will enjoy solid bipartisan political support in order that they can be sustained from one administration to another. As the U.S. Government expends taxpayer funds on the Nuclear Power 2010 program, the Global Nuclear Energy Partnership, the Generation IV initiative and other programs, it should consider the benefit to the U.S. industrial base and to U.S. non-proliferation posture as criteria in project design and source selection where possible. Finally, the ability of the United States to resolve its own difficulties in managing its spent fuel and nuclear wastes will be crucial to maintaining the credibility of the U.S. nuclear power program and will be vital to implementing important new nonproliferation initiatives designed to discourage the spread of sensitive nuclear facilities to other countries.

#### We’re on the brink of rapid prolif – access to tech is inevitable and multilateral institutions fail

**CFR 12** [CFR 7-5-2012, "The Global Nuclear Nonproliferation Regime," Council on Foreign Relations]

Nuclear weapons proliferation, whether by state or nonstate actors, poses one of the greatest threats to international security today. Iran's apparent efforts to acquire nuclear weapons, what amounts to North Korean nuclear blackmail, and the revelation of the A.Q. Khan black market nuclear network all underscore the far-from-remote possibility that a terrorist group or a so-called rogue state will acquire weapons of mass destruction or materials for a dirty bomb.¶ The problem of nuclear proliferation is global, and any effective response must also be multilateral. Nine states (China, France, India, Israel, North Korea, Pakistan, Russia, the United Kingdom, and the United States) are known or believed to have nuclear weapons, and more than thirty others (including Japan, Germany, and South Korea) have the technological ability to quickly acquire them. Amid volatile energy costs, the accompanying push to expand nuclear energy, growing concerns about the environmental impact of fossil fuels, and the continued diffusion of scientific and technical knowledge, access to dual-use technologies seems destined to grow.¶ In the background, a nascent global consensus regarding the need for substantial nuclear arms reductions, if not complete nuclear disarmament, has increasingly taken shape. In April 2009, for instance, U.S. president Barack Obama reignited global nonproliferation efforts through a landmark speech in Prague. Subsequently, in September of the same year, the UN Security Council (UNSC) unanimously passed Resolution 1887, which called for accelerated efforts toward total nuclear disarmament. In February 2012, the number of states who have ratified the Comprehensive Test Ban Treaty increased to 157, heightening appeals to countries such as the United States, Israel, and Iran to follow suit.¶ Overall, the existing global nonproliferation regime is a highly developed example of international law. Yet, despite some notable successes, existing multilateral institutions have failed to prevent states such as India, Pakistan, and North Korea from "going nuclear," and seem equally ill-equipped to check Iran as well as potential threats from nonstate, terrorist groups. The current framework must be updated and reinforced if it is to effectively address today's proliferation threats, let alone pave the way for "the peace and security of a world without nuclear weapons."

#### New proliferators will be uniquely destabilizing -- guarantees conflict escalation.

Cimbala, ‘8

[Stephen, Distinguished Prof. Pol. Sci. – Penn. State Brandywine, Comparative Strategy, “Anticipatory Attacks: Nuclear Crisis Stability in Future Asia”, 27, InformaWorld]

If the possibility existed of a mistaken preemption during and immediately after the Cold War, between the experienced nuclear forces and command systems of America and Russia, then it may be a matter of even more concern with regard to states with newer and more opaque forces and command systems. In addition, the Americans and Soviets (and then Russians) had a great deal of experience getting to know one another’s military operational proclivities and doctrinal idiosyncrasies, including those that might influence the decision for or against war. Another consideration, relative to nuclear stability in the present century, is that the Americans and their NATO allies shared with the Soviets and Russians a commonality of culture and historical experience. Future threats to American or Russian security from weapons of mass destruction may be presented by states or nonstate actors motivated by cultural and social predispositions not easily understood by those in the West nor subject to favorable manipulation during a crisis. The spread of nuclear weapons in Asia presents a complicated mosaic of possibilities in this regard. States with nuclear forces of variable force structure, operational experience, and command-control systems will be thrown into a matrix of complex political, social, and cultural crosscurrents contributory to the possibility of war. In addition to the existing nuclear powers in Asia, others may seek nuclear weapons if they feel threatened by regional rivals or hostile alliances. Containment of nuclear proliferation in Asia is a desirable political objective for all of the obvious reasons. Nevertheless, the present century is unlikely to see the nuclear hesitancy or risk aversion that marked the Cold War, in part, because the military and political discipline imposed by the Cold War superpowers no longer exists, but also because states in Asia have new aspirations for regional or global respect.12 The spread of ballistic missiles and other nuclear-capable delivery systems in Asia, or in the Middle East with reach into Asia, is especially dangerous because plausible adversaries live close together and are already engaged in ongoing disputes about territory or other issues.13 The Cold War Americans and Soviets required missiles and airborne delivery systems of intercontinental range to strike at one another’s vitals. But short-range ballistic missiles or fighter-bombers suffice for India and Pakistan to launch attacks at one another with potentially “strategic” effects. China shares borders with Russia, North Korea, India, and Pakistan; Russia, with China and NorthKorea; India, with Pakistan and China; Pakistan, with India and China; and so on. The short flight times of ballistic missiles between the cities or military forces of contiguous states means that very little time will be available for warning and attack assessment by the defender. Conventionally armed missiles could easily be mistaken for a tactical nuclear first use. Fighter-bombers appearing over the horizon could just as easily be carrying nuclear weapons as conventional ordnance. In addition to the challenges posed by shorter flight times and uncertain weapons loads, potential victims of nuclear attack in Asia may also have first strike–vulnerable forces and command-control systems that increase decision pressures for rapid, and possibly mistaken, retaliation. This potpourri of possibilities challenges conventional wisdom about nuclear deterrence and proliferation on the part of policymakers and academic theorists. For policymakers in the United States and NATO, spreading nuclear and other weapons of mass destruction in Asia could profoundly shift the geopolitics of mass destruction from a European center of gravity (in the twentieth century) to an Asian and/or Middle Eastern center of gravity (in the present century).14 This would profoundly shake up prognostications to the effect that wars of mass destruction are now passe, on account of the emergence of the “Revolution in Military Affairs” and its encouragement of information-based warfare.15 Together with this, there has emerged the argument that large-scale war between states or coalitions of states, as opposed to varieties of unconventional warfare and failed states, are exceptional and potentially obsolete.16 The spread of WMD and ballistic missiles in Asia could overturn these expectations for the obsolescence or marginalization of major interstate warfare.

#### Extinction.

Krieger, ‘9

[David, Pres. Nuclear Age Peace Foundation and Councilor – World Future Council, “Still Loving the Bomb After All These Years”, 9-4, https://www.wagingpeace.org/articles/2009/09/04\_krieger\_newsweek\_response.php?krieger]

Jonathan Tepperman’s article in the September 7, 2009 issue of Newsweek, “Why Obama Should Learn to Love the Bomb,” provides a novel but frivolous argument that nuclear weapons “may not, in fact, make the world more dangerous….” Rather, in Tepperman’s world, “The bomb may actually make us safer.” Tepperman shares this world with Kenneth Waltz, a University of California professor emeritus of political science, who Tepperman describes as “the leading ‘nuclear optimist.’” Waltz expresses his optimism in this way: “We’ve now had 64 years of experience since Hiroshima. It’s striking and against all historical precedent that for that substantial period, there has not been any war among nuclear states.” Actually, there were a number of proxy wars between nuclear weapons states, such as those in Korea, Vietnam and Afghanistan, and some near disasters, the most notable being the 1962 Cuban Missile Crisis. Waltz’s logic is akin to observing a man falling from a high rise building, and noting that he had already fallen for 64 floors without anything bad happening to him, and concluding that so far it looked so good that others should try it. Dangerous logic! Tepperman builds upon Waltz’s logic, and concludes “that all states are rational,” even though their leaders may have a lot of bad qualities, including being “stupid, petty, venal, even evil….” He asks us to trust that rationality will always prevail when there is a risk of nuclear retaliation, because these weapons make “the costs of war obvious, inevitable, and unacceptable.” Actually, he is asking us to do more than trust in the rationality of leaders; he is asking us to gamble the future on this proposition. “The iron logic of deterrence and mutually assured destruction is so compelling,” Tepperman argues, “it’s led to what’s known as the nuclear peace….” But if this is a peace worthy of the name, which it isn’t, it certainly is not one on which to risk the future of civilization. One irrational leader with control over a nuclear arsenal could start a nuclear conflagration, resulting in a global Hiroshima. Tepperman celebrates “the iron logic of deterrence,” but deterrence is a theory that is far from rooted in “iron logic.” It is a theory based upon threats that must be effectively communicated and believed. Leaders of Country A with nuclear weapons must communicate to other countries (B, C, etc.) the conditions under which A will retaliate with nuclear weapons. The leaders of the other countries must understand and believe the threat from Country A will, in fact, be carried out. The longer that nuclear weapons are not used, the more other countries may come to believe that they can challenge Country A with impunity from nuclear retaliation. The more that Country A bullies other countries, the greater the incentive for these countries to develop their own nuclear arsenals. Deterrence is unstable and therefore precarious. Most of the countries in the world reject the argument, made most prominently by Kenneth Waltz, that the spread of nuclear weapons makes the world safer. These countries joined together in the Nuclear Non-Proliferation Treaty (NPT) to prevent the spread of nuclear weapons, but they never agreed to maintain indefinitely a system of nuclear apartheid in which some states possess nuclear weapons and others are prohibited from doing so. The principal bargain of the NPT requires the five NPT nuclear weapons states (US, Russia, UK, France and China) to engage in good faith negotiations for nuclear disarmament, and the International Court of Justice interpreted this to mean complete nuclear disarmament in all its aspects. Tepperman seems to be arguing that seeking to prevent the proliferation of nuclear weapons is bad policy, and that nuclear weapons, because of their threat, make efforts at non-proliferation unnecessary and even unwise. If some additional states, including Iran, developed nuclear arsenals, he concludes that wouldn’t be so bad “given the way that bombs tend to mellow behavior.” Those who oppose Tepperman’s favorable disposition toward the bomb, he refers to as “nuclear pessimists.” These would be the people, and I would certainly be one of them, who see nuclear weapons as presenting an urgent danger to our security, our species and our future. Tepperman finds that when viewed from his “nuclear optimist” perspective, “nuclear weapons start to seem a lot less frightening.” “Nuclear peace,” he tells us, “rests on a scary bargain: you accept a small chance that something extremely bad will happen in exchange for a much bigger chance that something very bad – conventional war – won’t happen.” But the “extremely bad” thing he asks us to accept is the end of the human species. Yes, that would be serious. He also doesn’t make the case that in a world without nuclear weapons, the prospects of conventional war would increase dramatically. After all, it is only an unproven supposition that nuclear weapons have prevented wars, or would do so in the future. We have certainly come far too close to the precipice of catastrophic nuclear war. As an ultimate celebration of the faulty logic of deterrence, Tepperman calls for providing any nuclear weapons state with a “survivable second strike option.” Thus, he not only favors nuclear weapons, but finds the security of these weapons to trump human security. Presumably he would have President Obama providing new and secure nuclear weapons to North Korea, Pakistan and any other nuclear weapons states that come along so that they will feel secure enough not to use their weapons in a first-strike attack. Do we really want to bet the human future that Kim Jong-Il and his successors are more rational than Mr. Tepperman?

### Warming

#### Warming is real and anthropogenic – carbon dioxide increase, polar ice records, melting glaciers, sea level rise

**Prothero 12** [Donald R. Prothero, Professor of Geology at Occidental College and Lecturer in Geobiology at the California Institute of Technology, 3-1-2012, "How We Know Global Warming is Real and Human Caused," Skeptic, vol 17 no 2, EBSCO]

Converging Lines of Evidence¶ How do we know that global warming is real and primarily human caused? There are numerous lines of evidence that converge toward this conclusion.¶ 1. Carbon Dioxide Increase.¶ Carbon dioxide in our atmosphere has increased at an unprecedented rate in the past 200 years. Not one data set collected over a long enough span of time shows otherwise. Mann et al. (1999) compiled the past 900 years' worth of temperature data from tree rings, ice cores, corals, and direct measurements in the past few centuries, and the sudden increase of temperature of the past century stands out like a sore thumb. This famous graph is now known as the "hockey stick" because it is long and straight through most of its length, then bends sharply upward at the end like the blade of a hockey stick. Other graphs show that climate was very stable within a narrow range of variation through the past 1000, 2000, or even 10,000 years since the end of the last Ice Age. There were minor warming events during the Climatic Optimum about 7000 years ago, the Medieval Warm Period, and the slight cooling of the Little Ice Age in die 1700s and 1800s. But the magnitude and rapidity of the warming represented by the last 200 years is simply unmatched in all of human history. More revealing, die timing of this warming coincides with the Industrial Revolution, when humans first began massive deforestation and released carbon dioxide into the atmosphere by burning an unprecedented amount of coal, gas, and oil.¶ 2. Melting Polar Ice Caps.¶ The polar icecaps are thinning and breaking up at an alarming rate. In 2000, my former graduate advisor Malcolm McKenna was one of the first humans to fly over the North Pole in summer time and see no ice, just open water. The Arctic ice cap has been frozen solid for at least the past 3 million years (and maybe longer),4 but now the entire ice sheet is breaking up so fast that by 2030 (and possibly sooner) less than half of the Arctic will be ice covered in the summer.5 As one can see from watching the news, this is an ecological disaster for everything that lives up there, from the polar bears to the seals and walruses to the animals they feed upon, to the 4 million people whose world is melting beneath their feet. The Antarctic is thawing even faster. In February-March 2002, the Larsen B ice shelf - over 3000 square km (the size of Rhode Island) and 220 m (700 feet) thick- broke up in just a few months, a story typical of nearly all the ice shelves in Antarctica. The Larsen B shelf had survived all the previous ice ages and interglacial warming episodes over the past 3 million years, and even the warmest periods of the last 10,000 years- yet it and nearly all the other thick ice sheets on the Arctic, Greenland, and Antarctic are vanishing at a rate never before seen in geologic history.¶ 3. Melting Glaciers.¶ Glaciers are all retreating at the highest rates ever documented. Many of those glaciers, along with snow melt, especially in the Himalayas, Andes, Alps, and Sierras, provide most of the freshwater that the populations below the mountains depend upon - yet this fresh water supply is vanishing. Just think about the percentage of world's population in southern Asia (especially India) that depend on Himalayan snowmelt for their fresh water. The implications are staggering. The permafrost that once remained solidly frozen even in the summer has now Üiawed, damaging the Inuit villages on the Arctic coast and threatening all our pipelines to die North Slope of Alaska. This is catastrophic not only for life on the permafrost, but as it thaws, the permafrost releases huge amounts of greenhouse gases which are one of the major contributors to global warming. Not only is the ice vanishing, but we have seen record heat waves over and over again, killing thousands of people, as each year joins the list of the hottest years on record. (2010 just topped that list as the hottest year, surpassing the previous record in 2009, and we shall know about 2011 soon enough). Natural animal and plant populations are being devastated all over the globe as their environments change.6 Many animals respond by moving their ranges to formerly cold climates, so now places that once did not have to worry about disease-bearing mosquitoes are infested as the climate warms and allows them to breed further north.¶ 4. Sea Level Rise.¶ All that melted ice eventually ends up in the ocean, causing sea levels to rise, as it has many times in the geologic past. At present, the sea level is rising about 3-4 mm per year, more than ten times the rate of 0.10.2 mm/year that has occurred over the past 3000 years. Geological data show Üiat ttie sea level was virtually unchanged over the past 10,000 years since the present interglacial began. A few mm here or there doesn't impress people, until you consider that the rate is accelerating and that most scientists predict sea levels will rise 80-130 cm in just the next century. A sea level rise of 1.3 m (almost 4 feet) would drown many of the world's low-elevation cities, such as Venice and New Orleans, and low-lying countries such as the Netherlands or Bangladesh. A number of tiny island nations such as Vanuatu and the Maldives, which barely poke out above the ocean now, are already vanishing beneath the waves. Eventually their entire population will have to move someplace else.7 Even a small sea level rise might not drown all these areas, but they are much more vulnerable to the large waves of a storm surge (as happened with Hurricane Katrina), which could do much more damage than sea level rise alone. If sea level rose by 6 m (20 feet), most of die world's coastal plains and low-lying areas (such as the Louisiana bayous, Florida, and most of the world's river deltas) would be drowned.¶ Most of the world's population lives in lowelevation coastal cities such as New York, Boston, Philadelphia, Baltimore, Washington, D.C., Miami, and Shanghai. All of those cities would be partially or completely under water with such a sea level rise. If all the glacial ice caps melted completely (as they have several times before during past greenhouse episodes in the geologic past), sea level would rise by 65 m (215 feet)! The entire Mississippi Valley would flood, so you could dock an ocean liner in Cairo, Illinois. Such a sea level rise would drown nearly every coastal region under hundreds of feet of water, and inundate New York City, London and Paris. All that would remain would be the tall landmarks such as the Empire State Building, Big Ben, and the Eiffel Tower. You could tie your boats to these pinnacles, but the rest of these drowned cities would lie deep underwater.

#### Warming is real and causes extinction

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As horrifying as the scenario of human extinction by sudden, fast-burning nuclear fire may seem, the one consolation is that this future can be avoided within a relatively short period of time if responsible world leaders change Cold War thinking to move away from aggressive wars over natural resources and towards the eventual dismantlement of most if not all nuclear weapons. On the other hand, another scenario of human extinction by fire is one that may not so easily be reversed within a short period of time because it is not a fast-burning fire; rather, a slow burning fire is gradually heating up the planet as industrial civilization progresses and develops globally. This gradual process and course is long-lasting; thus it cannot easily be changed, even if responsible world leaders change their thinking about ‘‘progress’’ and industrial development based on the burning of fossil fuels. The way that global warming will impact humanity in the future has often been depicted through the analogy of the proverbial frog in a pot of water who does not realize that the temperature of the water is gradually rising. Instead of trying to escape, the frog tries to adjust to the gradual temperature change; finally, the heat of the water sneaks up on it until it is debilitated. Though it finally realizes its predicament and attempts to escape, it is too late; its feeble attempt is to no avail— and the frog dies. Whether this fable can actually be applied to frogs in heated water or not is irrelevant; it still serves as a comparable scenario of how the slow burning fire of global warming may eventually lead to a runaway condition and take humanity by surprise. Unfortunately, by the time the politicians finally all agree with the scientific consensus that global warming is indeed human caused, its development could be too advanced to arrest; the poor frog has become too weak and enfeebled to get himself out of hot water. The Intergovernmental Panel of Climate Change (IPCC) was established in 1988 by the WorldMeteorological Organization (WMO) and the United Nations Environmental Programme to ‘‘assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of humaninduced climate change, its potential impacts and options for adaptation and mitigation.’’[16]. Since then, it has given assessments and reports every six or seven years. Thus far, it has given four assessments.13 With all prior assessments came attacks fromsome parts of the scientific community, especially by industry scientists, to attempt to prove that the theory had no basis in planetary history and present-day reality; nevertheless, as more andmore research continually provided concrete and empirical evidence to confirm the global warming hypothesis, that it is indeed human-caused, mostly due to the burning of fossil fuels, the scientific consensus grew stronger that human induced global warming is verifiable. As a matter of fact, according to Bill McKibben [17], 12 years of ‘‘impressive scientific research’’ strongly confirms the 1995 report ‘‘that humans had grown so large in numbers and especially in appetite for energy that they were now damaging the most basic of the earth’s systems—the balance between incoming and outgoing solar energy’’; ‘‘. . . their findings have essentially been complementary to the 1995 report – a constant strengthening of the simple basic truth that humans were burning too much fossil fuel.’’ [17]. Indeed, 12 years later, the 2007 report not only confirms global warming, with a stronger scientific consensus that the slow burn is ‘‘very likely’’ human caused, but it also finds that the ‘‘amount of carbon in the atmosphere is now increasing at a faster rate even than before’’ and the temperature increases would be ‘‘considerably higher than they have been so far were it not for the blanket of soot and other pollution that is temporarily helping to cool the planet.’’ [17]. Furthermore, almost ‘‘everything frozen on earth is melting. Heavy rainfalls are becoming more common since the air is warmer and therefore holds more water than cold air, and ‘cold days, cold nights and frost have become less frequent, while hot days, hot nights, and heat waves have become more frequent.’’ [17]. Unless drastic action is taken soon, the average global temperature is predicted to rise about 5 degrees this century, but it could rise as much as 8 degrees. As has already been evidenced in recent years, the rise in global temperature is melting the Arctic sheets. This runaway polar melting will inflict great damage upon coastal areas, which could be much greater than what has been previously forecasted. However, what is missing in the IPCC report, as dire as it may seem, is sufficient emphasis on the less likely but still plausible worst case scenarios, which could prove to have the most devastating, catastrophic consequences for the long-term future of human civilization. In other words, the IPCC report places too much emphasis on a linear progression that does not take sufficient account of the dynamics of systems theory, which leads to a fundamentally different premise regarding the relationship between industrial civilization and nature. As a matter of fact, as early as the 1950s, Hannah Arendt [18] observed this radical shift of emphasis in the human-nature relationship, which starkly contrasts with previous times because the very distinction between nature and man as ‘‘Homo faber’’ has become blurred, as man no longer merely takes from nature what is needed for fabrication; instead, he now acts into nature to augment and transform natural processes, which are then directed into the evolution of human civilization itself such that we become a part of the very processes that we make. The more human civilization becomes an integral part of this dynamic system, the more difficult it becomes to extricate ourselves from it. As Arendt pointed out, this dynamism is dangerous because of its unpredictability. Acting into nature to transform natural processes brings about an . . . endless new change of happenings whose eventual outcome the actor is entirely incapable of knowing or controlling beforehand. The moment we started natural processes of our own - and the splitting of the atom is precisely such a man-made natural process -we not only increased our power over nature, or became more aggressive in our dealings with the given forces of the earth, but for the first time have taken nature into the human world as such and obliterated the defensive boundaries between natural elements and the human artifice by which all previous civilizations were hedged in’’ [18]. So, in as much as we act into nature, we carry our own unpredictability into our world; thus, Nature can no longer be thought of as having absolute or iron-clad laws. We no longer know what the laws of nature are because the unpredictability of Nature increases in proportion to the degree by which industrial civilization injects its own processes into it; through selfcreated, dynamic, transformative processes, we carry human unpredictability into the future with a precarious recklessness that may indeed end in human catastrophe or extinction, for elemental forces that we have yet to understand may be unleashed upon us by the very environment that we experiment with. Nature may yet have her revenge and the last word, as the Earth and its delicate ecosystems, environment, and atmosphere reach a tipping point, which could turn out to be a point of no return. This is exactly the conclusion reached by the scientist, inventor, and author, James Lovelock. The creator of the wellknown yet controversial Gaia Theory, Lovelock has recently written that it may be already too late for humanity to change course since climate centers around the world, . . . which are the equivalent of the pathology lab of a hospital, have reported the Earth’s physical condition, and the climate specialists see it as seriously ill, and soon to pass into a morbid fever that may last as long as 100,000 years. I have to tell you, as members of the Earth’s family and an intimate part of it, that you and especially civilisation are in grave danger. It was ill luck that we started polluting at a time when the sun is too hot for comfort. We have given Gaia a fever and soon her condition will worsen to a state like a coma. She has been there before and recovered, but it took more than 100,000 years. We are responsible and will suffer the consequences: as the century progresses, the temperature will rise 8 degrees centigrade in temperate regions and 5 degrees in the tropics. Much of the tropical land mass will become scrub and desert, and will no longer serve for regulation; this adds to the 40 per cent of the Earth’s surface we have depleted to feed ourselves. . . . Curiously, aerosol pollution of the northern hemisphere reduces global warming by reflecting sunlight back to space. This ‘global dimming’ is transient and could disappear in a few days like the smoke that it is, leaving us fully exposed to the heat of the global greenhouse. We are in a fool’s climate, accidentally kept cool by smoke, and before this century is over billions of us will die and the few breeding pairs of people that survive will be in the Arctic where the climate remains tolerable. [19] Moreover, Lovelock states that the task of trying to correct our course is hopelessly impossible, for we are not in charge. It is foolish and arrogant to think that we can regulate the atmosphere, oceans and land surface in order to maintain the conditions right for life. It is as impossible as trying to regulate your own temperature and the composition of your blood, for those with ‘‘failing kidneys know the never-ending daily difficulty of adjusting water, salt and protein intake. The technological fix of dialysis helps, but is no replacement for living healthy kidneys’’ [19]. Lovelock concludes his analysis on the fate of human civilization and Gaia by saying that we will do ‘‘our best to survive, but sadly I cannot see the United States or the emerging economies of China and India cutting back in time, and they are the main source of emissions. The worst will happen and survivors will have to adapt to a hell of a climate’’ [19]. Lovelock’s forecast for climate change is based on a systems dynamics analysis of the interaction between humancreated processes and natural processes. It is a multidimensional model that appropriately reflects the dynamism of industrial civilization responsible for climate change. For one thing, it takes into account positive feedback loops that lead to ‘‘runaway’’ conditions. This mode of analysis is consistent  with recent research on how ecosystems suddenly disappear. A 2001 article in Nature, based on a scientific study by an international consortium, reported that changes in ecosystems are not just gradual but are often sudden and catastrophic [20]. Thus, a scientific consensus is emerging (after repeated studies of ecological change) that ‘‘stressed ecosystems, given the right nudge, are capable of slipping rapidly from a seemingly steady state to something entirely different,’’ according to Stephen Carpenter, a limnologist at the University of Wisconsin-Madison (who is also a co-author of the report). Carpenter continues, ‘‘We realize that there is a common pattern we’re seeing in ecosystems around the world, . . . Gradual changes in vulnerability accumulate and eventually you get a shock to the system - a flood or a drought - and, boom, you’re over into another regime. It becomes a self-sustaining collapse.’’ [20]. If ecosystems are in fact mini-models of the system of the Earth, as Lovelock maintains, then we can expect the same kind of behavior. As Jonathon Foley, a UW-Madison climatologist and another co-author of the Nature report, puts it, ‘‘Nature isn’t linear. Sometimes you can push on a system and push on a system and, finally, you have the straw that breaks the camel’s back.’’ Also, once the ‘‘flip’’ occurs, as Foley maintains, then the catastrophic change is ‘‘irreversible.’’ [20]. When we expand this analysis of ecosystems to the Earth itself, it’s frightening. What could be the final push on a stressed system that could ‘‘break the camel’s back?’’ Recently, another factor has been discovered in some areas of the arctic regions, which will surely compound the problem of global ‘‘heating’’ (as Lovelock calls it) in unpredictable and perhaps catastrophic ways. This disturbing development, also reported in Nature, concerns the permafrost that has locked up who knows how many tons of the greenhouse gasses, methane and carbon dioxide. Scientists are particularly worried about permafrost because, as it thaws, it releases these gases into the atmosphere, thus, contributing and accelerating global heating. It is a vicious positive feedback loop that compounds the prognosis of global warming in ways that could very well prove to be the tipping point of no return. Seth Borenstein of the Associated Press describes this disturbing positive feedback loop of permafrost greenhouse gasses, as when warming ‘‘. already under way thaws permafrost, soil that has been continuously frozen for thousands of years. Thawed permafrost releases methane and carbon dioxide. Those gases reach the atmosphere and help trap heat on Earth in the greenhouse effect. The trapped heat thaws more permafrost and so on.’’ [21]. The significance and severity of this problem cannot be understated since scientists have discovered that ‘‘the amount of carbon trapped in this type of permafrost called ‘‘yedoma’’ is much more prevalent than originally thought and may be 100 times [my emphasis] the amount of carbon released into the air each year by the burning of fossil fuels’’ [21]. Of course, it won’t come out all at once, at least by time as we commonly reckon it, but in terms of geological time, the ‘‘several decades’’ that scientists say it will probably take to come out can just as well be considered ‘‘all at once.’’ Surely, within the next 100 years, much of the world we live in will be quite hot and may be unlivable, as Lovelock has predicted. Professor Ted Schuur, a professor of ecosystem ecology at the University of Florida and co-author of the study that appeared in Science, describes it as a ‘‘slow motion time bomb.’’ [21]. Permafrost under lakes will be released as methane while that which is under dry ground will be released as carbon dioxide. Scientists aren’t sure which is worse. Whereas methane is a much more powerful agent to trap heat, it only lasts for about 10 years before it dissipates into carbon dioxide or other chemicals. The less powerful heat-trapping agent, carbon dioxide, lasts for 100 years [21]. Both of the greenhouse gasses present in permafrost represent a global dilemma and challenge that compounds the effects of global warming and runaway climate change. The scary thing about it, as one researcher put it, is that there are ‘‘lots of mechanisms that tend to be self-perpetuating and relatively few that tend to shut it off’’ [21].14 In an accompanying AP article, Katey Walters of the University of Alaska at Fairbanks describes the effects as ‘‘huge’’ and, unless we have a ‘‘major cooling,’’ - unstoppable [22]. Also, there’s so much more that has not even been discovered yet, she writes: ‘‘It’s coming out a lot and there’s a lot more to come out.’’ [22]. 4. Is it the end of human civilization and possible extinction of humankind? What Jonathon Schell wrote concerning death by the fire of nuclear holocaust also applies to the slow burning death of global warming: Once we learn that a holocaust might lead to extinction**, we have no right to gamble**, because if we lose, the game will be over, and neither we nor anyone else will ever get another chance. Therefore, although, scientifically speaking, there is all the difference in the world between the mere possibility that a holocaust will bring about extinction and the certainty of it, morally they are the same, and we have no choice but to address the issue of nuclear weapons as though we knew for a certainty that their use would put an end to our species [23].15 When we consider that beyond the horror of nuclear war, another horror is set into motion to interact with the subsequent nuclear winter to produce a poisonous and super heated planet, the chances of human survival seem even smaller. Who knows, even if some small remnant does manage to survive, what the poisonous environmental conditions would have on human evolution in the future. A remnant of mutated, sub-human creatures might survive such harsh conditions, but for all purposes, human civilization has been destroyed, and the question concerning human extinction becomes moot. Thus, **we have no other choice but to consider the finality of it all**, as Schell does: ‘‘Death lies at the core of each person’s private existence, but part of death’s meaning is to be found in the fact that it occurs in a biological and social world that survives.’’ [23].16 But what if the world itself were to perish, Schell asks. Would not it bring about a sort of ‘‘second death’’ – the death of the species – a possibility that the vast majority of the human race is in denial about? Talbot writes in the review of Schell’s book that it is not only the ‘‘death of the species, not just of the earth’s population on doomsday, but of countless unborn generations. They would be spared literal death but would nonetheless be victims . . .’’ [23]. That is the ‘‘second death’’ of humanity – the horrifying, unthinkable prospect that there are no prospects – that there will be no future. In the second chapter of Schell’s book, he writes that since we have not made a positive decision to exterminate ourselves but instead have ‘‘chosen to live on the edge of extinction, periodically lunging toward the abyss only to draw back at the last second, our situation is one of uncertainty and nervous insecurity rather than of absolute hopelessness.’’ [23].17 In other words, the fate of the Earth and its inhabitants has not yet been determined. Yet time is not on our side. Will we relinquish the fire and our use of it to dominate the Earth and each other, or will we continue to gamble with our future at this game of Russian roulette while **time** increasingly **stacks the cards against** our chances of **survival**?

#### The IFR is the only way to reduce coal emissions sufficiently to avert the worst climate disasters

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To prevent a climate disaster, we must eliminate virtually all coal plant emissions worldwide in 25 years. The best way and, for all practical purposes, the only way to get all countries off of coal is not with coercion; it is to make them want to replace their coal burners by giving them a plug-compatible technology that is less expensive. The IFR can do this. It is plug-compatible with the burners in a coal plant (see Nuclear Power: Going Fast). No other technology can upgrade a coal plant so it is greenhouse gas free while reducing operating costs at the same time. In fact, no other technology can achieve either of these goals. The IFR can achieve both.¶ The bottom line is that without the IFR (or a yet-to-be-invented technology with similar ability to replace the coal burner with a cheaper alternative), it is unlikely that we’ll be able to keep CO2 under 450 ppm.¶ Today, the IFR is the only technology with the potential to displace the coal burner. That is why restarting the IFR is so critical and why Jim Hansen has listed it as one of the top five things we must do to avert a climate disaster.[4]¶ Without eliminating virtually all coal emissions by 2030, the sum total of all of our other climate mitigation efforts will be inconsequential. Hansen often refers to the near complete phase-out of carbon emissions from coal plants worldwide by 2030 as the sine qua non for climate stabilization (see for example, the top of page 6 in his August 4, 2008 trip report).¶ To stay under 450ppm, we would have to install about 13,000 GWe of new carbon-free power over the next 25 years. That number was calculated by Nathan Lewis of Caltech for the Atlantic, but others such as Saul Griffith have independently derived a very similar number and White House Science Advisor John Holdren used 5,600 GWe to 7,200 GWe in his presentation to the Energy Bar Association Annual Meeting on April 23, 2009. That means that if we want to save the planet, we must install more than 1 GWe per day of clean power every single day for the next 25 years. That is a very, very tough goal. It is equivalent to building one large nuclear reactor per day, or 1,500 huge wind turbines per day, or 80,000 37 foot diameter solar dishes covering 100 square miles every day, or some linear combination of these or other carbon free power generation technologies. Note that the required rate is actually higher than this because Hansen and Rajendra Pachauri, the chair of the IPCC, now both agree that 350ppm is a more realistic “not to exceed” number (and we’ve already exceeded it).¶ Today, we are nowhere close to that installation rate with renewables alone. For example, in 2008, the average power delivered by solar worldwide was only 2 GWe (which is to be distinguished from the peak solar capacity of 13.4GWe). That is why every renewable expert at the 2009 Aspen Institute Environment Forum agreed that nuclear must be part of the solution. Al Gore also acknowledges that nuclear must play an important role.¶ Nuclear has always been the world’s largest source of carbon free power. In the US, for example, even though we haven’t built a new nuclear plant in the US for 30 years, nuclear still supplies 70% of our clean power!¶ Nuclear can be installed very rapidly; much more rapidly than renewables. For example, about two thirds of the currently operating 440 reactors around the world came online during a 10 year period between 1980 and 1990. So our best chance of meeting the required installation of new power goal and saving the planet is with an aggressive nuclear program.¶ Unlike renewables, nuclear generates base load power, reliably, regardless of weather. Nuclear also uses very little land area. It does not require the installation of new power lines since it can be installed where the power is needed. However, even with a very aggressive plan involving nuclear, it will still be extremely difficult to install clean power fast enough.¶ Unfortunately, even in the US, we have no plan to install the clean power we need fast enough to save the planet. Even if every country were to agree tomorrow to completely eliminate their coal plant emissions by 2030, how do we think they are actually going to achieve that? There is no White House plan that explains this. There is no DOE plan. There is no plan or strategy. The deadlines will come and go and most countries will profusely apologize for not meeting their goals, just like we have with most of the signers of the Kyoto Protocol today. Apologies are nice, but they will not restore the environment.¶ We need a strategy that is believable, practical, and affordable for countries to adopt. The IFR offers our best hope of being a centerpiece in such a strategy because it the only technology we know of that can provide an economically compelling reason to change.¶ At a speech at MIT on October 23, 2009, President Obama said “And that’s why the world is now engaged in a peaceful competition to determine the technologies that will power the 21st century. … The nation that wins this competition will be the nation that leads the global economy. I am convinced of that. And I want America to be that nation, it’s that simple.”¶ Nuclear is our best clean power technology and the IFR is our best nuclear technology. The Gen IV International Forum (GIF) did a study in 2001-2002 of 19 different reactor designs on 15 different criteria and 24 metrics. The IFR ranked #1 overall. Over 242 experts from around the world participated in the study. It was the most comprehensive evaluation of competitive nuclear designs ever done. Top DOE nuclear management ignored the study because it didn’t endorse the design the Bush administration wanted.¶ The IFR has been sitting on the shelf for 15 years and the DOE currently has no plans to change that.¶ How does the US expect to be a leader in clean energy by ignoring our best nuclear technology? Nobody I’ve talked to has been able to answer that question.¶ We have the technology (it was running for 30 years before we were ordered to tear it down). And we have the money: The Recovery Act has $80 billion dollars. Why aren’t we building a demo plant?¶ IFRs are better than conventional nuclear in every dimension. Here are a few:¶ Efficiency: IFRs are over 100 times more efficient than conventional nuclear. It extracts nearly 100% of the energy from nuclear material. Today’s nuclear reactors extract less than 1%. So you need only 1 ton of actinides each year to feed an IFR (we can use existing nuclear waste for this), whereas you need 100 tons of freshly mined uranium each year to extract enough material to feed a conventional nuclear plant.¶ Unlimited power forever: IFRs can use virtually any actinide for fuel. Fast reactors with reprocessing are so efficient that even if we restrict ourselves to just our existing uranium resources, we can power the entire planet forever (the Sun will consume the Earth before we run out of material to fuel fast reactors). If we limited ourselves to using just our DU “waste” currently in storage, then using the IFR we can power the US for over 1,500 years without doing any new mining of uranium.[5]¶ Exploits our largest energy resource: In the US, there is 10 times as much energy in the depleted uranium (DU) that is just sitting there as there is coal in the ground. This DU waste is our largest natural energy resource…but only if we have fast reactors. Otherwise, it is just waste. With fast reactors, virtually all our nuclear waste (from nuclear power plants, leftover from enrichment, and from decommissioned nuclear weapons)[6] becomes an energy asset worth about $30 trillion dollars…that’s not a typo…$30 trillion, not billion.[7] An 11 year old child was able to determine this from publicly available information in 2004.

#### Alternative methods can’t solve warming

**Kirsch 9** (Steve Kirsch, Bachelor of Science and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology, American serial entrepreneur who has started six companies: Mouse Systems, Frame Technology, Infoseek, Propel, Abaca, and OneID, "How Does Obama Expect to Solve the Climate Crisis Without a Plan?" 7/16/9) [http://www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to\_b\_236588.html-http://www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to\_b\_236588.html](http://www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to_b_236588.html-http%3A//www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to_b_236588.html)

The ship is sinking slowly and we are quickly running out of time to develop and implement any such plan if we are to have any hope of saving the planet. What we need is a plan we can all believe in. A plan where our country's smartest people all nod their heads in agreement and say, "Yes, this is a solid, viable plan for keeping CO2 levels from touching 425ppm and averting a global climate catastrophe."¶ ¶ At his Senate testimony a few days ago, noted climate scientist James Hansen made it crystal clear once again that the only way to avert an irreversible climate meltdown and save the planet is to phase out virtually all coal plants worldwide over a 20 year period from 2010 to 2030. Indeed, if we don't virtually eliminate the use of coal worldwide, everything else we do will be as effective as re-arranging deck chairs on the Titanic.¶ ¶ Plans that won't work¶ ¶ Unfortunately, nobody has proposed a realistic and practical plan to eliminate coal use worldwide or anywhere close to that. There is no White House URL with such a plan. No environmental group has a workable plan either.¶ ¶ Hoping that everyone will abandon their coal plants and replace them with a renewable power mix isn't a viable strategy -- we've proven that in the U.S. Heck, even if the Waxman-Markey bill passes Congress (a big "if"), it is so weak that it won't do much at all to eliminate coal plants. So even though we have Democrats controlling all three branches of government, it is almost impossible to get even a weak climate bill passed.¶ ¶ If we can't pass strong climate legislation in the U.S. with all the stars aligned, how can we expect anyone else to do it? So expecting all countries to pass a 100% renewable portfolio standard (which is far far beyond that contemplated in the current energy bill) just isn't possible. Secondly, even if you could mandate it politically in every country, from a practical standpoint, you'd never be able to implement it in time. And there are lots of experts in this country, including Secretary Chu, who say it's impossible without nuclear (a point which I am strongly in agreement with).¶ ¶ Hoping that everyone will spontaneously adopt carbon capture and sequestration (CCS) is also a non-starter solution. First of all, CCS doesn't exist at commercial scale. Secondly, even if we could make it work at scale, and even it could be magically retrofitted on every coal plant (which we don't know how to do), it would require all countries to agree to add about 30% in extra cost for no perceivable benefit. At the recent G8 conference, India and China have made it clear yet again that they aren't going to agree to emission goals.¶ ¶ Saying that we'll invent some magical new technology that will rescue us at the last minute is a bad solution. That's at best a poor contingency plan.¶ ¶ The point is this: It should be apparent to us that we aren't going to be able to solve the climate crisis by either "force" (economic coercion or legislation) or by international agreement. And relying on technologies like CCS that may never work is a really bad idea.¶ ¶ The only remaining way to solve the crisis is to make it economically irresistible for countries to "do the right thing." The best way to do that is to give the world a way to generate electric power that is economically more attractive than coal with the same benefits as coal (compact power plants, 24x7 generation, can be sited almost anywhere, etc). Even better is if the new technology can simply replace the existing burner in a coal plant. That way, they'll want to switch. No coercion is required.

#### IFRs solve massive energy and overpopulation crunches that spark resource wars and water scarcity – no alternatives can solve

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

The global threat of anthropogenic climate change has become a political hot potato, especially in the USA. The vast majority of climate scientists, however, are in agreement that the potential consequences of inaction are dire indeed. Yet even those who dismiss concerns about climate change cannot discount an array of global challenges facing humanity that absolutely must be solved if wars, dislocations, and social chaos are to be avoided.¶ Human population growth exacerbates a wide range of problems, and with most demographic projections predicting an increase of about 50% to nine or ten billion by mid-century, we are confronted with a social and logistical dilemma of staggering proportions. The most basic human morality dictates that we attempt to solve these problems without resorting to forcible and draconian methods. At the same time, simple social justice demands that the developed world accept the premise that the billions who live today in poverty deserve a drastic improvement in their standard of living, an improvement that is being increasingly demanded and expected throughout the developing countries. To achieve environmental sustainability whilst supporting human well-being will require a global revolution in energy and materials technology and deployment fully as transformative as the Industrial Revolution, but unlike that gradual process we find ourselves under the gun, especially if one considers climate change, peak oil and other immediate sustainability problems to be bona fide threats.¶ It is beyond the purview of this paper to address the question of materials disposition and recycling [i], or the social transformations that will necessarily be involved in confronting the challenges of the next several decades. But the question of energy supply is inextricably bound up with the global solution to our coming crises. It may be argued that energy is the most crucial aspect of any proposed remedy. Our purpose here is to demonstrate that the provision of all the energy that humankind can possibly require to meet the challenges of the coming decades and centuries is a challenge that already has a realistic solution, using technology that is just waiting to be deployed.¶ Energy Realism¶ The purpose of this paper is not to exhaustively examine the many varieties of energy systems currently in use, in development, or in the dreams of their promoters. Nevertheless, because of the apparent passion of both the public and policymakers toward certain energy systems and the political influence of their advocates, a brief discussion of “renewable” energy systems is in order. Our pressing challenges make the prospect of heading down potential energy cul de sacs – especially to the explicit exclusion of nuclear fission alternatives – to be an unconscionable waste of our limited time and resources.¶ There is a vocal contingent of self-styled environmentalists who maintain that wind and solar power—along with other technologies such as wave and tidal power that have yet to be meaningfully developed—can (and should) provide all the energy that humanity demands. The more prominent names are well-known among those who deal with these issues: Amory Lovins, Lester Brown and Arjun Makhijani are three in particular whose organizations wield considerable clout with policymakers. The most recent egregious example to make a public splash, however, was a claim trumpeted with a cover story in Scientific American that all of our energy needs can be met by renewables (predominantly ‘technosolar’ – wind and solar thermal) by 2030. The authors of this piece—Mark Jacobson (Professor, Stanford) and Mark A. Delucchi (researcher, UC Davis)—were roundly critiqued [ii] online and in print.¶ An excellent treatment of the question of renewables’ alleged capacity to provide sufficient energy is a book by David MacKay [iii] called Sustainable Energy – Without the Hot Air. [iv] MacKay was a professor of physics at Cambridge before being appointed Chief Scientific Advisor to the Department of Energy and Climate Change in the UK. His book is a model of scientific and intellectual rigor.¶ Energy ideologies can be every bit as fervent as those of religion, so after suggesting Dr. MacKay’s book as an excellent starting point for a rational discussion of energy systems we’ll leave this necessary digression with a point to ponder. Whatever one believes about the causes of climate change, there is no denying that glaciers around the world are receding at an alarming rate. Billions of people depend on such glaciers for their water supplies. We have already seen cases of civil strife and even warfare caused or exacerbated by competition over water supplies. Yet these are trifling spats when one considers that the approaching demographic avalanche will require us to supply about three billion more people with all the water they need within just four decades.¶ There is no avoiding the fact that the water for all these people—and even more, if the glaciers continue to recede, as expected—will have to come from the ocean. That means a deployment of desalination facilities on an almost unimaginable scale. Not only will it take staggering amounts of energy just to desalinate such a quantity, but moving the water to where it is needed will be an additional energy burden of prodigious proportions. A graphic example can be seen in the case of California, its state water project being the largest single user of energy in California. It consumes an average of 5 billion kWh/yr, more than 25% of the total electricity consumption of the entire state of New Mexico [v].¶ Disposing of the salt derived from such gargantuan desalination enterprises will likewise take a vast amount of energy. Even the relatively modest desalination projects along the shores of the Persian Gulf have increased its salinity to the point of serious concern. Such circumscribed bodies of water simply won’t be available as dumping grounds for the mountains of salt that will be generated, and disposing of it elsewhere will require even more energy to move and disperse it. Given the formidable energy requirements for these water demands alone, any illusions about wind turbines and solar panels being able to supply all the energy humanity requires should be put to rest.¶ Energy Density and Reliability¶ Two of the most important qualities of fossil fuels that enabled their rise to prominence in an industrializing world is their energy density and ease of storage. High energy density and a stable and convenient long-term fuel store are qualities that makes it practical and economical to collect, distribute, and then use them on demand for the myriad of uses to which we put them. This energy density, and the dispatchability that comes from having a non-intermittent fuel source, are the very things lacking in wind and solar and other renewable energy systems, yet they are crucial factors in considering how we can provide reliable on-demand power for human society.¶ The supply of fossil fuels is limited, although the actual limits of each different type are a matter of debate and sometimes change substantially with new technological developments, as we’ve seen recently with the adoption of hydraulic fracturing (fracking) methods to extract natural gas from previously untapped subterranean reservoirs. The competition for fossil fuel resources, whatever their limitations, has been one of the primary causes of wars in the past few decades and can be expected to engender further conflicts and other symptoms of international competition as countries like India and China lead the developing nations in seeking a rising standard of living for their citizens. Even disregarding the climatological imperative to abandon fossil fuels, the economic, social, and geopolitical upheavals attendant upon a continuing reliance on such energy sources demands an objective look at the only other energy-dense and proven resource available to us: nuclear power.¶ We will refrain from discussing the much hoped-for chimera of nuclear fusion as the magic solution to all our energy needs, since it is but one of many technologies that have yet to be harnessed. Our concern here is with technologies that we know will work, so when it comes to harnessing the power of the atom we are confined to nuclear fission. The splitting of uranium and transuranic elements in fission-powered nuclear reactors is a potent example of energy density being tapped for human uses. Reactor-grade uranium (i.e. uranium enriched to about 3.5% U-235) is over 100,000 times more energy-dense than anthracite coal, the purest form of coal used in power generation, and nearly a quarter-million times as much as lignite, the dirty coal used in many power plants around the world. Ironically, one of the world’s largest producers and users of lignite is Germany, the same country whose anti-nuclear political pressure under the banner of environmentalism is globally infamous.¶ The vast majority of the world’s 440 commercial nuclear power plants are light-water reactors (LWRs) that use so-called enriched uranium (mentioned above). Natural uranium is comprised primarily of two isotopes: U-235 and U-238. The former comprises only 0.7% of natural uranium, with U-238 accounting for the remaining 99.3%. LWR technology requires a concentration of at least 3.5% U-235 in order to maintain the chain reaction used to extract energy, so a process called uranium enrichment extracts as much of the U-235 as possible from several kilos of natural uranium and adds it to a fuel kilo in order to reach a concentration high enough to enable the fission process. Because current enrichment technology is capable of harvesting only some of the U-235, this results in about 8-10 kilos of “depleted uranium” (DU) for every kilo of power plant fuel (some of which is enriched to 4% or more, depending on plant design). The USA currently has (largely unwanted) stockpiles of DU in excess of half a million tons, while other countries around the world that have been employing nuclear power over the last half-century have their own DU inventories.¶ Technological advances in LWR engineering have resulted in new power plants that are designated within the industry as Generation III or III+ designs, to differentiate them from currently-used LWRs normally referred to as Gen II plants. The European Pressurized Reactor (EPR), currently being built by AREVA in Finland, France and China, is an example of a Gen III design. It utilizes multiple-redundant engineered systems to assure safety and dependability. Two examples of Gen III+ designs are the Westinghouse/Toshiba AP-1000, now being built in China, and GE/Hitachi’s Economic Simplified Boiling Water Reactor (ESBWR), expected to be certified for commercial use by the U.S. Nuclear Regulatory Commission by the end of 2011. The distinguishing feature of Gen III+ designs is their reliance on the principle of passive safety, which would allow the reactor to automatically shut down in the event of an emergency without operator action or electronic feedback, due to inherent design properties. Relying as they do on the laws of physics rather than active intervention to intercede, they consequently can avoid the necessity for several layers of redundant systems while still maintaining ‘defense in depth’, making it possible to build them both faster and cheaper than Gen III designs—at least in theory. As of this writing we are seeing this playing out in Finland and China. While it is expected that first-of-a-kind difficulties (and their attendant costs) will be worked out so that future plants will be cheaper and faster to build, the experience to date seems to validate the Gen III+ concept. Within a few years both the EPR and the first AP-1000s should be coming online, as well as Korean, Russian and Indian designs, at which point actual experience will begin to tell the tale as subsequent plants are built.¶ The safety and economics of Gen III+ plants seem to be attractive enough to consider this generation of nuclear power to provide reasons for optimism that humanity can manage to provide the energy needed for the future. But naysayers are warning (with highly questionable veracity) about uranium shortages if too many such plants are built. Even if they’re right, the issue can be considered moot, for there is another player waiting in the wings that is so superior to even Gen III+ technology as to render all concerns about nuclear fuel shortages baseless.¶ The Silver Bullet¶ In the endless debate on energy policy and technology that seems to increase by the day, the phrase heard repeatedly is “There is no silver bullet.” (This is sometimes rendered “There is no magic bullet”, presumably by those too young to remember the Lone Ranger TV series.) Yet a fission technology known as the integral fast reactor (IFR), developed at Argonne National Laboratory in the 80s and 90s, gives the lie to that claim.¶ Below is a graph [vi] representing the number of years that each of several power sources would be able to supply all the world’s expected needs if they were to be relied upon as the sole source of humanity’s energy supply. The categories are described thusly:¶ Conventional oil: ordinary oil drilling and extraction as practiced today¶ Conventional gas: likewise¶ Unconventional oil (excluding low-grade oil shale). More expensive methods of recovering oil from more problematic types of deposits¶ Unconventional gas (excluding clathrates and geopressured gas): As with unconventional oil, this encompasses more costly extraction techniques¶ Coal: extracted with techniques in use today. The worldwide coal estimates, however, are open to question and may, in fact, be considerably less than they are ordinarily presented to be, unless unconventional methods like underground in situ gasification are deployed. [vii]¶ Methane Clathrates & Geopressured Gas: These are methane resources that are both problematic and expensive to recover, with the extraction technology for clathrates only in the experimental stage.¶ Low-grade oil shale and sands: Very expensive to extract and horrendously destructive of the environment. So energy-intensive that there have been proposals to site nuclear power plants in the oil shale and tar sands areas to provide the energy for extraction!¶ Uranium in fast breeder reactors (IFRs being the type under discussion here) Integral fast reactors can clearly be seen as the silver bullet that supposedly doesn’t exist. The fact is that IFRs can provide all the energy that humanity requires, and can deliver it cleanly, safely, and economically. This technology is a true game changer.

#### Resource scarcity causes global wars – highly probable

**Klare 2006** – professor of peace and world security studies at Hampshire College

(Michael, Mar 6 2006, “The coming resource wars” http://www.energybulletin.net/node/13605)

It's official: the era of resource wars is upon us. In a major London address, British Defense Secretary John Reid warned that global climate change and **dwindling natural resources are combining to increase the likelihood of violent conflict** over land, water and energy. Climate change, he indicated, “will make scarce resources, clean water, viable agricultural land even scarcer”—and this will “make the emergence of violent conflict more rather than less likely.” Although not unprecedented, Reid’s prediction of an upsurge in resource conflict is significant both because of his senior rank and the vehemence of his remarks. “The blunt truth is that the lack of water and agricultural land is a significant contributory factor to the tragic conflict we see unfolding in Darfur,” he declared. “We should see this as a warning sign.” Resource conflicts of this type are most likely to arise in the developing world, Reid indicated, but the more advanced and affluent countries are not likely to be spared the damaging and destabilizing effects of global climate change. With sea levels rising, water and energy becoming increasingly scarce and prime agricultural lands turning into deserts, internecine warfare over access to vital resources will become a global phenomenon. Reid’s speech, delivered at the prestigious Chatham House in London (Britain’s equivalent of the Council on Foreign Relations), is but the most recent expression of a growing trend in strategic circles to view environmental and resource effects—rather than political orientation and ideology—as the most potent source of armed conflict in the decades to come. With the world population rising, global consumption rates soaring, energy supplies rapidly disappearing and climate change eradicating valuable farmland, the stage is being set for persistent and worldwide struggles over vital resources. Religious and political strife will not disappear in this scenario, but rather will be channeled into contests over valuable sources of water, food and energy.

#### Water scarcity causes extinction

**Coddrington 10** (7/1, http://www.tomorrowtoday.co.za/2010/07/01/a-looming-crisis-world-water-wars/

PhD-Business Adminstration & Guest lecturer at top business schools, including the London Business School, Duke Corporate Education and the Gordon Institute of Business Science.)

People go to war when their way of life is threatened. I have written before about the many issues we face in the coming years that threaten our way of life. These include global warming/climate change, pollution, pandemics, nuclear bombs, intelligent machines, genetics, and more. More and more I am becoming convinced that the next major regional/global conflict will be over water. We are much more likely to have water wars in the next decade than nuclear ones. And I were to guess, I’d say that it is most likely to happen in around North East Africa. This is a region with its own internal issues. But it also has the foreign involvement of America, China, the Middle Eastern Arab nations, and (increasingly) Israel. Quite a potent mix… Last week, Addis Ababa, Ethiopia hosted the 18th regular meeting of the Council of Ministers of Water Affairs of the Nile Basin countries. In the lead up to the conference, Ethiopia, Rwanda, Uganda, Tanzania and Kenya, the five countries that are all upstream of Egypt and Sudan concluded a water-sharing treaty – to the exclusion of Egypt and Sudan. This has obviously reignited the longstanding dispute over water distribution of the world’s longest river in the world’s driest continent. Egypt is currently the largest consumer of Nile water and is the main beneficiary of a 1929 treaty which allows it to take 55.5 billion cubic metres of water each year, or 87% of the White and Blue Nile’s flow. By contrast, Sudan is only allowed to draw 18.5 billion cubic metres. On attaining independence Sudan refused to acknowledge the validity of the Nile water treaty and negotiated a new bilateral treaty with Egypt in 1959. Kenya, Tanzania and Uganda also expressly refused to be bound by the treaty when they attained independence, but have not negotiated a new treaty since then. Under the 1929 treaty, Egypt has powers over upstream projects: The Nile Waters Agreement of 1929 states that no country in the Nile basin should undertake any works on the Nile, or its tributaries, without Egypt’s express permission. This gives Egypt a veto over anything, including the building of dams on numerous rivers in Kenya, Burundi, Rwanda, Tanzania, Ethiopia, and by implication Egypt has control over agriculture, industry and infrastructure and basic services such as drinking water and electricity in these countries. This is surely untenable. But if the other countries broke the treaty, would Egypt respond with force? Since the late 1990s, Nile Basin states have been trying unsuccessfully to develop a revised framework agreement for water sharing, dubbed the Nile Basin Initiative (NBI). In May 2009, talks held in Kinshasa broke down because Egypt and Sudan’s historical water quotas were not mentioned in the text of the proposed agreement. Water ministers met again in July 2009 in Alexandria, where Egypt and Sudan reiterated their rejection of any agreement that did not clearly establish their historical share of water. This is an untenable position. Upstream states accuse Egypt and Sudan of attempting to maintain an unfair, colonial-era monopoly on the river. Egyptian officials and analysts, however, defend their position, pointing out that Egypt is much more dependent on the river for its water needs than its upstream neighbours. Egypt claims that Nile water accounts for more than 95% of Egypt’s total water consumption, although they appear to be working hard to reduce both their water usage (they’re stopping growing rice, for example) and their dependence on the Nile.

### ANL Leadership – Kentucky

#### Argonne National Lab has a severe shortfall of quality scientists now – replacements for retirees aren’t going there

Grossenbacher 08[CQ Congressional Testimony, April 23, 2008, John, Laboratory Director Idaho National Laboratory, “NUCLEAR POWER,” SECTION: CAPITOL HILL HEARING TESTIMONY, Statement of John J. Grossenbacher Laboratory Director Idaho National Laboratory, Committee on House Science and Technology, Lexis]

While all of the programs I've highlighted for you individually and collectively do much to advance the state of the art in nuclear science and technology, and enable the continued global expansion of nuclear power, there is a great area of challenge confronting nuclear energy's future. As with most other technologically intensive U.S. industries - it has to do with human capital and sustaining critical science and technology infrastructure. My laboratory, its fellow labs and the commercial nuclear power sector all face a troubling reality - a significant portion of our work force is nearing retirement age and the pipeline of qualified potential replacements is not sufficiently full. Since I'm well aware of this committee's interests in science education, I'd like to update you on what the Department and its labs are doing to inspire our next generation of nuclear scientists, engineers and technicians. Fundamentally, the Office of Nuclear Energy has made the decision to invite direct university partnership in the shared execution of all its R&D programs and will set aside a significant amount of its funds for that purpose. Already, nuclear science and engineering programs at U.S. universities are involved in the Office of Nuclear Energy's R&D, but this move will enable and encourage even greater participation in DOE's nuclear R&D programs. In addition, all NE-supported labs annually bring hundreds of our nation's best and brightest undergraduate and graduate students on as interns or through other mechanisms to conduct real research. For example, at INL we offer internships, fellowships, joint faculty appointments and summer workshops that focus on specific research topics or issues that pertain to maintaining a qualified workforce. This year, we are offering a fuels and materials workshop for researchers and a 10-week training course for engineers interested in the field of reactor operations. Last year, DOE designated INL's Advanced Test Reactor as a national scientific user facility, enabling us to open the facility to greater use by universities and industry and to supporting more educational opportunities. ATR is a unique test reactor that offers the ability to test fuels and materials in nine different prototypic environments operated simultaneously. With this initiative, we join other national labs such as Argonne National Laboratory and Oak Ridge National Laboratory in offering nuclear science and engineering assets to universities, industry and the broader nuclear energy research community. Finally, national laboratories face their own set of challenges in sustaining nuclear science and technology infrastructure - the test reactors, hot cells, accelerators, laboratories and other research facilities that were developed largely in support of prior missions. To obtain a more complete understanding of the status of these assets, the Office of Nuclear Energy commissioned a review by Battelle to examine the nuclear science and technology infrastructure at the national laboratories and report back later this year on findings and recommendations on a strategy for future resource allocation that will enable a balanced, yet sufficient approach to future investment in infrastructure.

#### Successful demonstration projects and collaborative interdisciplinary research is necessary to attract the best and brightest scientists to Argonne and fully complete products

**ANL 8** [Argonne National Laboratory INSTITUTIONAL PLAN FY2004-FY2008, operated by The University of Chicago for the¶ United States Department of Energy’s Office of Science]

Our planning is based on five key¶ assumptions:¶ • DOE’s national laboratories must act¶ increasingly as a synergistic system, with the¶ laboratories managing their collective¶ competencies, increasing their overall costeffectiveness, and partnering on major¶ initiatives among themselves and with the¶ private and academic sectors.¶ • Sponsors, regulators, and the public will¶ continue to require that we demonstrate¶ responsible corporate citizenship. This¶ imperative includes being a good and trustworthy neighbor, conducting operations costeffectively and responsibly, and meeting or¶ exceeding regulatory requirements.¶ • Argonne must compete on its merits for¶ federal funding, for the “best and brightest”¶ employees, and for the modern infrastructure¶ needed for future success. Important factors in¶ this competition will be scientific and¶ technological excellence, cost-effectiveness,¶ mission contributions, record of performance,¶ and a working environment that enables high¶ performance from a diverse and talented¶ workforce.¶ • Robust links with universities, industry,¶ federal laboratories, and the general scientific¶ and technical community (within the¶ United States and abroad) are essential if we¶ are to maintain our leadership and fully¶ exploit advances made throughout the world.¶ • Computing, computational science, and¶ communications and information technology¶ will advance rapidly, will become seamlessly¶ intertwined with experimental science, and¶ will thereby revolutionize many fields of¶ research and applications that are central to¶ the missions of DOE and Argonne.

#### Restarting IFR project at ANL spurs R+D in all sectors – collaborative research utilizing nuclear science insight key to effective programs

Blees 8 [Tom Blees 2008 “Prescription for the Planet: The painless remedy for our energy and environmental crises” Pg. 367]

21. Restart nuclear power development research at national labs like Argonne, concentrating on small reactor designs like the nuclear battery ideas discussed earlier. Given the cost and difficulty of extending power grids over millions of square miles of developing countries, the advantages of distributed generation in transforming the energy environment of such countries can hardly be exaggerated. It is a great pity that many of the physicists and engineers who were scattered when the Argonne IFR project was peremptorily terminated chose to retire. Rebuilding that brain trust should be, well, a no-brainer. If one but looks at the incredible challenges those talented people were able to meet, it seems perfectly reasonable to suppose that a focus on small sealed reactor development could likewise result in similar success. Some of those working on the AHTR and other seemingly unneeded projects could well transition to R&D that fits into the new paradigm. Japanese companies are already eager to build nuclear batteries, and there should be every effort to work in concert with them and other researchers as we develop these new technologies. The options this sort of collaborative research would open up for the many varied types of energy needs around the world would be incalculable.

#### Argonne is key – other labs lack key catalyst infrastructure like the APS

**Fischetti** et all **9** [“Proceedings of the¶ Advanced Photon Source Renewal Workshop”¶ Hickory Ridge Marriott Conference Hotel¶ Presentation to Department of Energy¶ October 20-21, 2008¶ February 2009¶ Robert F. Fischetti Argonne National Laboratory, Biosciences Division;¶ APS Life Sciences Council representative¶ Paul H. Fuoss Argonne National Laboratory, Materials Science Division;¶ APS Users Organization representative¶ Rodney E. Gerig Argonne National Laboratory, Photon Sciences, Denis T. Keane Northwestern University;¶ DuPont-Northwestern-Dow Collaborative Access Team;¶ APS Partner User Council representative¶ John F. Maclean Argonne National Laboratory, APS Engineering Division¶ Dennis M. Mills, Chair Argonne National Laboratory, Photon Sciences, Dan A. Neumann National Institute of Standards and Technology; APS Scientific Advisory Committee representative¶ George Srajer Argonne National Laboratory, X-ray Science Division]

Scientific Community¶ An enhanced catalyst research beamline with capabilities for in situ XAFS, powder¶ diffraction, and kinetics measurements would benefit the entire catalysis community,¶ i.e., government research laboratories, academia, and industry. The beamline and its¶ staff would also serve as a focal point for expanding catalyst research to other APS¶ beamlines using advanced techniques not routinely applied to catalyst systems, e.g.,¶ SAXS, XES, RIXS, and HERF spectroscopy. Development of these latter methods¶ would position the APS as a leader in this area and attract leading scientists from all¶ over the world. It is expected that new users would initially characterize their materials and identify appropriate systems for specialized techniques.¶ Fig. 4. Cell for in situ x-ray absorption studies of fuel cell¶ catalysts. Standard Fuel Cell Technologies cell hardware¶ was machined to allow x-ray fluorescence studies of cathode electrocatalysts in an operating membrane-electrode¶ assembly (fuel cell). (Argonne National Laboratory photograph)Throughout the U.S. and the world, there are countless research groups working to¶ develop the enabling material in fuel cell catalysis: an oxygen reduction electrocatalyst that is less expensive and more durable than platinum [36-38]. A few of these¶ groups utilize synchrotron-based x-ray techniques to characterize their electrocatalysts; however, these studies are almost exclusively in environments mimicking the¶ reactive environment or are ex situ. A notable exception is the catalyst development¶ effort being led by Los Alamos National Laboratory, which encompasses many approaches and involves many university and national laboratories. As part of this project, Argonne researchers have developed the capability to characterize catalysts¶ containing low-atomic-number elements in an operating fuel cell using XAFS at the¶ APS. Utilizing this cell (Fig. 4), Argonne scientists have determined the active site in¶ a cobalt-containing catalyst. This capability would be extremely useful to other catalyst development teams around the country and the world, and it is envisioned that a¶ dedicated APS electrocatalysis beamline could be designed and made available to¶ these teams. The neutron source at the National Institute of Standards and Technology (NIST) has a beamline dedicated to studies of water transport in fuel cells, which¶ has provided invaluable information for fuel cell materials design. The APS beamline¶ would be the catalyst counterpart to the NIST beamline.¶ A molecular-level understanding of the interactions and correlations that occur in solution and between solution phases is essential to building a predictive capability of a¶ metal ion’s solubility, reactivity, kinetics, and energetics. Until the recent availability¶ of tunable, high-energy x-rays this understanding has been significantly limited by¶ the absence of structural probes. The APS, with its high flux of high-energy x-rays, is¶ the ideal synchrotron source to provide this new information, which is critical to the¶ advancement of solution chemistry. The utility of high-energy x-rays is currently¶ being demonstrated as part of an APS Partner User Proposal (PUP-52), and has received high visibility, including an Inorganic Chemistry feature cover [34]. This effort¶ is interesting a cadre of solution chemists that, to date, have not been part of the user¶ base at synchrotron facilities. The extension of high-energy capabilities from simple¶ PDF experiments to more complex liquid-liquid interfaces is expected to significantly¶ broaden this new interest group into areas including soft-matter studies.

#### APS key to safe nanotech development

**Lindsey 12** [“Scientist Uses Advance Photon Source to Study Nano-Scale Materials”, Laura, Director of Communications and Marketing, The College of Arts and Science, ¶ University of Missouri Columbia, Department of Physics and Astronomy, Jan 25, 2012]

Emerging new technologies utilize advanced materials that are assembled on exceedingly small scales of length. Because of their small size, these nano-scale materials often exhibit unique properties that can potentially be harnessed for applications and new science. In order to do this however, one needs a comprehensive understanding and characterization of their physical behavior on the atomic scale. Professor Paul Miceli is doing just that with the Advanced Photon Source (APS) at Argonne National Laboratory in Argonne, Ill. The APS is the brightest source of x-rays in North America. This machine, which is one kilometer in circumference, allows scientists to collect data with unprecedented detail and in short time frames.¶ “The Advanced Photon Source’s x-ray beam is a billion times more intense than what I can see in my lab,” says Miceli.¶ He deposits thin layers, typically one atom thick, onto a surface from a vapor and then studies the structures by scattering the intense x-ray beam. By doing this, Miceli can determine how the atoms rearrange themselves on the surface so he can develop a better understanding of how nano-structures grow. Because of the unprecedented brightness of the x-ray beam, he is able to observe the materials as they grow in real time. In addition to the unique aspect of the x-ray beam, these studies are facilitated by an extensive ultra-high-vacuum growth-and-analysis chamber residing at the APS that was designed and developed by Miceli.¶ “My findings pertain to basic science about how atoms organize themselves,” says Miceli.¶ Because the x-ray beam can probe both the surface and the subsurface of the materials, Miceli’s research has made discoveries that could not be achieved by other techniques. For example, his research found that nano-clusters of missing atoms become incorporated into metallic crystals as they grow. This discovery is important because it brings new insight to theories of crystal growth, and it forces scientists to think about how atomic-scale mechanisms might lead to the missing atoms**.** Such effects, which also have practical implications for technological applications of nano-materials, have not been considered in current theories.¶ Other studies by Miceli have shown that the growth of some metallic nano-crystals cannot be explained by conventional theories of crystal growth. For example, quantum-mechanical effects on the conduction electrons in very small nano-crystals can change the energy of the crystal, and Miceli showed that the statistical mechanics of coarsening — when large crystals become larger while small crystals get smaller and vanish — does not follow the conventional theories that have worked successfully in materials science over the past 50 years. In fact, he has found that atoms can move over metallic nano-crystalline surfaces thousands of times faster than normal crystals, illustrating the many surprises and challenges that nano-scale materials present to scientists.

#### Successful analysis of nanotech creates disincentives competing R&D programs that culminate in arms races and grey goo

**Vandermolen, 2006** [Thomas D., BS, Louisiana Tech University; MA, Naval War College, officer in charge, Maritime Science and Technology Center, Yokosuka, Japan. He was previously assigned as a student at the Naval War College, Newport Naval Station, Rhode Island , http://www.airpower.maxwell.af.mil/airchronicles/apj/apj06/fal06/vandermolen.html]

Given the predilection of some hackers to create harmful computer viruses just for the thrill of it, it is not a great conceptual leap to imagine that “nanohackers” might decide to do the same with actual viruses. Perhaps the most frightening weapon of all—and thus no doubt a natural aspiration for potential nanohackers—is the infamous self-replicating gray-goo assemblers. Designing a gray-goo replicator would be an extra-ordinarily complex undertaking, however, and would require solving a multitude of extremely difficult engineering challenges; accordingly, some have argued that such an effort would be either impossible or highly unlikely.23 However, a dedicated and concerted attempt could conceivably fall short of the goal but still come up with something extremely dangerous and uncontrollable. To help ensure that the accidental creation of a gray-goo nanomachine remains a practical impossibility, Drexler’s Foresight Institute, a nonprofit organization he founded to “help prepare society for anticipated advanced technologies,” has prescribed guidelines for the safe development of NT. The institute recommends avoiding the use of replicators (i.e., assemblers) entirely, or at a minimum, designing them so that they cannot operate in a natural environment.24 Surveillance. An early application of MNT and NT will likely be inexpensive yet advanced microsurveillance platforms and tools. Mass produced, these disposable sensors could be used to blanket large areas, providing ubiquitous surveillance of the people within. Although obviously a battlefield concern, such surveillance could also be employed against any group or population, raising privacy and legality issues.25 Environmental Damage. MNT was originally perceived as a potential cure-all for a variety of environmental problems: nanobots in the atmosphere, for example, could physically repair the ozone layer or remove greenhouse gases. Recently, however, NT is increasingly seen as a potential environmental problem in its own right. Both NT and MNT are expected to produce large quantities of nanoparticles and other disposable nanoproducts, the environmental effects of which are currently unknown. This “nanolitter,” small enough to penetrate living cells, raises the possibility of toxic poisoning of organs, either from the nanolitter itself or from toxic elements attached to those nanoparticles.26 Indirect Threats We can expect severe disruptions from MNT since it gives “little or no advantage to the entrenched leader of an earlier technological wave.”27 Thus, it has the potential to radically upset the geopolitical playing field and pose powerful indirect threats to national security. Economic. Glimpsing the potential economic change triggered by MNT, Bill Joy has estimated that the wealth generated by fusing the information and physical worlds in the twenty-first century will equal a thousand trillion US dollars. As former US House Speaker Newt Gingrich observed, this is equivalent to “adding 100 US economies to the world market.”28 No one can be quite sure what an MNT-based economy would look like, but most speculations seem to agree that it would probably resemble the software economy with product design being the most difficult and expensive part of production—distribution and manufacturing being very inexpensive. A current analogy would be the millions of man-hours and dollars expended to create a computer word-processing program, compared to the ease with which users can “burn” copies of the program with their home computers and distribute them to friends. This analogy also points out the problems with piracy and intellectual property rights that would almost certainly plague an MNT economy.29 Essentially a highly advanced manufacturing process emphasizing distributed, low-cost manufacturing, MNT directly threatens economies that are heavily dependent on mass production. For example, China’s economic growth depends on using mass human labor to produce inexpensive, high-quality goods; in 2004 it provided over $18 billion worth of manufactured goods to the Wal-Mart department-store chain.30 But what will happen to China’s economy when Wal-Mart is able to use its own MNT-enabled fabrication facilities at home to produce higher-quality goods at even lower cost? For that matter, when consumers are able to produce their own high-quality, low-cost, custom-designed products in their own homes, who will need Wal-Mart? MNT is also expected to improve energy technologies such as solar energy by making solar cells tougher and much more efficient; combined with more efficient manufacturing and lighter but stronger vehicles (carbon-based materials can be up to 60 times as strong as steel), the requirements for petroleum--fueled energy supplies may decline rapidly. This would obviously have significant impact on oil companies and countries with oil-based economies; a correspondingly significant disruption is likely for the shipping industry, which last year ordered petroleum-shipping tankers valued at $77.2 billion.31 In addition, if distributed manufacturing were to allow most people or communities to construct what they need locally, international trade in physical items may also decrease, which casts some doubt as to whether globalization’s “peace through interdependence” effect will be as powerful in the future. Indeed, isolationism may become a more attractive policy option for many countries. Social. MNT’s medical applications may present some of the greatest social and ethical challenges in human history. Issues of cloning, genetically modified crops, abortion, and even cochlear implants have created political atomic bombs in recent years—MNT offers a completely new level of control over the human body and its processes. Accordingly, MNT has been embraced by the transhumanist movement, which advocates using technology to intellectually, physically, and psychologically improve the human form from its current “early” phase to a more advanced “posthuman” phase. Reactions to transhumanist concepts range from enthusiasm to indifference to outright fear and hostility. Historian Francis Fukuyama has declared transhumanism one of “the world’s most dangerous ideas.”32 Revolutionary. The final threat discussed here essentially results from a synergy of the other threats. Prof. Carlota Perez has advanced a model of technological revolution composed of two periods: (1) an installation period, during which the new techno-economic paradigm (TEP) gains increasing support from business, and (2) a deployment period, when the paradigm becomes the new norm. During the installation period, investor enthusiasm for the new TEP grows into a frenzy leading to an increasing gap between the “haves,” who are profiting from the new TEP, and the “have-nots,” who are still invested in the old TEP.33 Ultimately the investment frenzy forms a stock bubble, which bursts and brings on the turning point, usually a serious recession or even a depression. It is during the turning point that society and the judicial system are forced to reform and shift to meet the characteristics of the newly established TEP.34 If this model of technological revolution is correct—and it appears to match the last five technological revolutions well enough—then sometime during the development of MNT there will be a period of social, political, and economic unrest as the world system is pulled in two directions, embracing the new TEP versus clinging to the old. Given the staggering array of changes that MNT can bring, this period may be particularly stressful. Moreover, if MNT has already enabled some of its more dangerous potential applications—such as knowledge-based mass destruction—before proper political and social control structures have been established, this period could be catastrophic. What Strategy Should the United States Pursue? There are three basic strategy courses that the United States can pursue to deal with MNT: some form of deliberate international regulation and control, a “hands-off” approach that lets natural market forces dictate development and regulation, and a total ban on MNT development. International Regulation Two strategic approaches have relevance to international regulation of MNT: a hegemonic regulation imposed on the rest of the world by the United States, or a cooperative regulation overseen and enforced by an international organization. In either case, regulation will succeed—if it does—only by removing the majority of reasons nations will have to develop “uncontrolled” MNT. The basic premise in regulation should be to maximize public access to the benefits of MNT while eliminating independent (i.e., unregulated) development by minimizing access to, or interference with, the manufacturing technology itself. Ideally, freely providing the fruits of MNT to the world population will decrease the urge to develop unregulated alternative R&D programs and may simultaneously reduce the impetus for civil and/or resource-related conflicts by virtually eradicating the effects of poverty.35 The Center for Responsible Nanotechnology, a nonprofit think tank “concerned with the major societal and environmental implications of advanced nanotechnology,” has proposed a solution based around a nanofactory, a self-contained, highly secure MM system—in effect a highly advanced NT version of Gershenfeld’s desktop fab-lab apparatus.36 In this strategy, a closely guarded crash development program would be set up as soon as possible to develop the MM expertise required to build a nanofactory. It is essential that the nanofactory be developed before any possible competing MNT R&D program can come to fruition. Nanofactories would then be reproduced and distributed to nations and organizations (at some point possibly even to individuals) around the world, with emphasis placed on the most poverty-stricken regions. This “standard” nanofactory would be the only approved MNT manufacturing apparatus in the world and would even have internal limitations as to what could be constructed (no replicating assemblers, for example, except under very carefully controlled and monitored conditions). The advantages of this strategy are that it would offer a very large carrot—with the stick of regulation—in the form of the nanofactories. They could act as valid tools of humanitarian assistance, as leverage to prevent balking governments from pursuing their own rogue MNT development programs, or even as assurance that citizens’ needs are being met.37 The appeal of (and the demand for) the nanofactories would likely be enormous, particularly if they are produced for personal use. As Gershenfeld has noted about his conceptually similar fab-labs, “The killer app for personal fabrication is fulfilling individual desires rather than merely meeting mass-market needs.”38 By restricting nanofabrication methods to the standard nanofactory alone, the threat of gray-goo replicators would be minimized probably as much as is possible.39 Of course, there are disadvantages and risks in this strategy as well. Although widespread availability of nanofactories may reduce the desire for independent MNT R&D programs, “noncomplying” groups will try to hide their projects, thus making compliance even harder to verify. A significant risk is inherent in distributing the nanofactories; the units will require extensive, built-in security to protect both their inner physical workings and their operating software. Every hacker in the world (not to mention rogue organizations or governments) would be dying to crack nanofactory security. As a possible solution, the nanofactories must be programmed to destroy themselves if any attempt to access the classified areas of the unit occurs. This will lead to many, many broken nanofactories, but since they can be created relatively easily and cheaply, replacing them should not be an issue. In order for this strategy to have a decent chance of working, the United States should not attempt to assume a hegemonist stance and become the sole governing body of this system. Such a strategy would require a US‑only nanofactory development program. Furthermore, US efforts to dominate nanofactory technology will likely result in a “nanofactory race” that the United States could lose. Europe, Japan, Korea, China, and India are all conducting research into nanotechnology.40 However poorly the US national image is perceived throughout the world today, it could grow exponentially worse if the United States emerged as the sole MNT superpower. Therefore, for both technical and diplomatic reasons, the US primacy option is not the best solution. However, the United States should play a major role in establishing an international control organization to formulate and carry out the regulation strategy. Such an organization would have a better chance of actually developing a working nanofactory before competing efforts do so (although maintaining security would be horrendously difficult) as well as encouraging international legitimacy for the nanofactory plan, which in turn would likely result in greater buy-in by the world community. There are already some rumblings of international support for an arms-control-like containment structure for NT. For example, the North Atlantic Treaty Organization’s special report on emerging technologies notes that “the need for control of these new technologies is more important now than in previous times of scientific development.”41 An organization like the one described here will be supremely difficult to establish and maintain and will require many years of diplomatic maneuvering to secure the proper agreements. As economist David Friedman notes, We don’t have a decent mechanism for centralized control on anything like the necessary scale. . . . Our decentralized mechanisms . . . depend on a world where there is some workable definition of property rights in which the actions that a person takes with his property have only slight external effects, beyond those that can be handled by contract. Technological progress might mean that no such definition exists—in which case we are left with zero workable solutions to the coordination problem.42 We must determine whether a workable solution exists and do so quickly. MNT could be 50 years away—then again, perhaps only 10. Do Nothing A valid alternative to the difficulties of regulation would be just letting the technology emerge as international-market and social forces dictate. Proponents of this strategy would rely on the involved parties (governments and multinational corporations conducting the majority of the R&D) to self--regulate the use and distribution of MNT. It is also possible that NT research will hit an intellectual brick wall and that the sheer difficulty of mastering nanoscience and its applications will slow the arrival of MNT such that a disruptive technological revolution never occurs or is drastically mitigated. This strategy holds the highest level of risk and is essentially a strategy of hopeful optimism. Multiple R&D programs will likely lead to multiple successes, which could very well lead to competition at the national military level as well as an MNT arms race. Multiple programs will mean varying levels of success, and the leading organization or state will be less likely to agree to regulation, particularly if such regulation would decrease or eliminate its lead. Given MNT’s tremendous potential for both peaceful and violent applications, controlling it with a “do nothing” strategy is analogous to providing nuclear reactors to every country under the assumption that none will use them to develop nuclear weapons. This strategy is unlikely to work and is in fact highly dangerous. Forbid Research and Development If MNT is so dangerous, then why allow it to be developed at all? Why invent another nuclear-bomb equivalent? Proponents of this strategy—such as the aforementioned Bill Joy—would advocate at a minimum the following: (1) adoption of a voluntary moratorium on the part of the scientific community against further MNT-related research, and ultimately, (2) the establishment of an international set of laws to forbid any R&D into MNT. Mr. Joy believes that the US unilateral abandonment of biological-warfare research is a “shining example” of the beginnings of such a strategy.43 In many ways this path is almost as dangerous as the do nothing strategy, except it might take longer for the dangers to emerge. There are two main problems with this strategy: verification and the dual-use nature of MNT. Even if every country agreed to the research ban, how would the other nations verify compliance? Unlike nuclear technology, MNT doesn’t require exotic materials that can be detected at a distance to create deadly weapons, and nuclear weapons can’t make millions of copies of themselves. Detecting non-state-actor programs would be even more difficult. We are left with the same problems faced by biological-weapons-control agencies, except that biological weapons are desired only by certain types of organizations. Virtually everyone—states, organizations, and individuals—will want NT. The potential benefits of MNT make it very attractive, particularly for poorer countries; it not only enables nations to make weapons easily, but also to purify and desalinate water, create inexpensive yet sturdy homes, provide distributed and reliable power, and possibly even expand or improve their food supplies. In short, MNT can help a poor country provide the basic necessities of life, which leaves no economic or military incentive to comply. In fact, such a strategy would only push development to noncomplying countries.44 This creates another problem: there would be no “complying” country capable of defending against a rogue, MNT-equipped nation unless complying countries maintained covert and illicit R&D programs. To paraphrase the National Rifle Association slogan, if nanotechnology is outlawed, only outlaws will have nanotechnology. Conclusion Based on the radically unprecedented direct and indirect threats to US national security posed by MNT, the United States should adopt a cooperative strategy of international regulation to control and guide R&D. The regulation should maximize the security of the processes but should not constrict innovation or liberal distribution of the technology’s benefits. The United States should immediately begin investigating forms of potential regulatory regimes for employment and begin laying the educational and diplomatic framework necessary to create the most appropriate international control group. As the most recent national defense strategy notes about disruptive technological advances, “As such breakthroughs can be unpredictable, we should recognize their potential consequences and hedge against them.”45 Whatever form US strategy takes to deal with MNT, it must not be reactive in nature. The threats enabled by MNT will likely evolve faster than bureaucratic solutions can cope.

#### Extinction

**CRN, 2004** [Center for Responsible Nanotechnology, “Disaster Scenarios,” 7-14, http://crnano.typepad.com/crnblog/2004/07/disaster\_scenar.html]

Now let's take a look at the dark side of advanced nanotechnology. This is the question posed by our recommended study #26: "What are the disaster/disruption scenarios?" (Note: We're not entirely dystopian -- see our earlier post on nano benefits.) This disaster/disruption topic is part of the third segment of CRN's thirty essential studies, on "Policies and Policymaking". Recommended in-depth studies in this section assume the existence of a general-purpose molecular manufacturing system. All preliminary answers are based on diamondoid nanofactory technology. Determine which of the following scenarios are plausible, and if so, whether they are survivable or preventable. Subquestion A: Massive war? Preliminary answer: Highly plausible. A nano arms race appears almost inevitable, and would probably be unstable as discussed in the military capabilities study (#20). A nano-enabled war would probably be lethal to many civilians. As pointed out by Tom McCarthy, "Military planners will seek a target that is large enough to find and hit, and that cannot be easily replaced. The natural choice, given the circumstances, will be civilian populations." Both full-scale war and unconventional/terroristic war will target civilians, who will be nearly impossible to defend without major lifestyle changes. It would be easy to deploy enough antipersonnel weapons to make the earth unsurvivable by unprotected humans. Subquestion B: Economic meltdown? Preliminary answer: It's easy to imagine a nanofactory package that allows completely self-sufficient living, off grid and without money, while retaining modern first-world comfort levels. However, a modest amount of advertising would make this unattractive to most people. As discussed elsewhere, we can expect a large fraction of jobs in a wide range of areas related to manufacturing, extraction, and supply to disappear. This problem is already appearing with increased automation and efficiency, but could rapidly get worse. The factors that lead to economic meltdown also provide increased self-sufficiency, so it ought to be survivable in the absence of oppressive policy (maintaining artificial scarcity while removing sources of income). Secondary effects from social disruption may be problematic but ought to be survivable. Attempts to subsidize dead-end jobs will probably be harmful in the long run. Some amount of economic disruption should be expected. Social engineering to reduce the stigma of unemployment (why should unearned income be good for the rich and bad for the poor?) and policy to allow displaced workers to share in the benefits of the new technology will be helpful. Subquestion C: Runaway self-replication? Preliminary answer: Also known as the 'gray goo' scenario, this is perhaps the earliest and most famous concern related to molecular manufacturing. Contrary to early statements by Drexler, this could not happen accidentally; manufacturing systems, even early lab versions, will not remotely have the capability to become self-contained free-range self-replicators. However, the deliberate combination of a very small nanofactory, a very small chemical plant to convert organic chemicals into feedstock, and some robotics, could be a substantial nuisance or even threat. Eventually, the technology will develop to the point where it will be easy to make a device that requires active cleanup to avoid widespread environmental damage. The prevalence of computer viruses implies that creating such devices will be attractive to certain personality types, and eventually within their capability. So, although runaway self-replication is not a first-rank concern, eventually it will need to be studied, and some combination of prevention and cleanup capability probably will have to be implemented. In theory, this could pose an existential threat.

### Solvency

#### Contention 4: Solvency

#### Current loan guarantees aren’t enough – more on new reactor types are key to catalyze nuclear construction and solve nuclear leadership

**Belogolova 12** [National Journal Daily, July 19, 2012, “U.S. Nuclear Industry Seen Needing a Boost”, Olga Belogolova, lexis, khirn]

A robust nuclear-energy industry should be a high priority for the country's energy and national-security policy given the importance of the sector to global nonproliferation, according to a new report released on Thursday by the Bipartisan Policy Center's Nuclear Initiative . Specifically, the United States needs to lead in the licensing and development **of new reactors** and on safety reforms, management of spent nuclear fuel, the nuclear-export market, and research and development in the nuclear sector, according to the report led by former Sen. Pete Domenici, R-N.M., and former Energy Department Assistant Secretary for Nuclear Energy Warren (Pete) Miller. But leadership on nuclear issues could prove to be a challenge for the United States. Although the country has long led the charge on civilian nuclear power, the combination of a slowed electricity market, the lack of sweeping climate legislation, a natural-gas boom, and last year's Fukushima Daiichi nuclear accident in Japan have created obstacles for the development of new nuclear power in the United States in recent years. While the Nuclear Regulatory Commission this year has approved four new reactors for the Vogtle and Summer nuclear plants in Georgia and South Carolina, respectively, there are likely to only be a few more plants licensed in the United States in the near future. The story is very different on the international level. After Fukushima, countries such as Germany, Italy, Switzerland, and of course Japan have paused or slowed down their nuclear-energy development, but that hasn't stopped the rest of the world. Many other nations such as China, India, South Korea, and Russia have reaffirmed plans to expand their fleets of nuclear reactors, while some countries in the Middle East have even announced plans to develop nuclear energy for the first time. China alone, which has 26 new reactors under development, is expected to account for 40 percent of planned nuclear construction globally. The United States might be a leader now, accounting for nearly one-third of global nuclear generation, but it won't be long before others come out ahead of us, especially given how long it takes to construct new reactors, Domenici and Miller explained. "It will be increasingly difficult for the United States to maintain its technological leadership without some near-term domestic demand for new construction," they write in the report. In order to control the proliferation of nuclear weapons, the United States **needs to remain involved in everything** that happens to nuclear materials, from the export of nuclear fuel for energy use to the disposal of spent fuel. Given the global picture, Domenici and Miller suggest a shift in U.S. policies in order to ensure that the U.S. nuclear energy program is not stuck at a near-standstill. "Market signals alone are unlikely to result in a diverse fuel mix, so helping to maintain and improve a range of electricity supply options remains a role for federal policy," the two write in the report. "In particular, U.S. policy should be aimed at helping to preserve nuclear energy as an important technology option for near- or longer-term deployment." The vast shale-gas reserves in the United States and new technology to tap them will probably keep natural-gas prices low for the foreseeable future, making financing of more expensive nuclear power more difficult. **Federal loan guarantees have long been viewed as crucial to growing the nuclear industry**, but the Energy Department has dragged its feet on these conditional loans, especially after the bankruptcy of the federally funded solar firm Solyndra so much so that some companies have decided not to wait around and see what happens. Southern Company, which is building the first two new reactors to be approved in decades at its Vogtle nuclear plant in Georgia, on Thursday said that it is now considering doing so without federal support. The company had been waiting for an $8.33 billion loan guarantee to build the two new reactors, but Southern CEO Tom Fanning told Reuters on Thursday that talks with DOE were going slowly and they might not be willing to wait any longer.

#### Loan guarantees attract private capital – increases are key

**Peskoe 12** [Ari Peskoe, associate in the law firm of McDermott Will and Emery LLP and focuses his practice on regulatory, legislative, compliance, and transactional issues related to energy markets, 4-20-2012, "A Solution Looking For a Problem: Building More Nuclear Reactors after Vogtle," The Electricty Journal, vol 25 issue 3, Science Direct]

Given the checkered history of reactor construction projects,56 private lenders are understandably skittish about lending billions of dollars to develop a new reactor. Construction of the Vogtle and SCANA reactors will be a critical test, and significant cost overruns on these two projects could doom the prospects for construction of additional reactors. Even if the construction of Vogtle and SCANA are on budget, it will likely still be difficult for future project developers to raise enough debt financing without government support.57 Federal loan guarantees shift “a large part of the learning costs and construction risks” from private lenders to the federal government by ensuring that lenders receive payment in the event that the developer defaults on repayments.58 Appropriations for the guarantees authorized by the Energy Policy Act of 2005 will soon run out, so future guarantees will require congressional action.59¶ Loan guarantees cost the federal government little or nothing unless there is an event of default.60 Creating a long-term guarantee program would be entirely consistent with the government's historic role in accepting risks and liabilities of nuclear power. Although it has not been implemented effectively, the Nuclear Waste Policy Act (NWPA) of 1982 requires the DOE to transport nuclear waste from privately owned reactors to permanent government storage facilities.61 Concerned about a “cloud of bankruptcy” hanging over its operations,62 the nascent nuclear industry pushed Congress to pass the Price-Anderson Act in 1957, which indemnifies the industry against claims arising from a nuclear incident. Both the NWPA and the Price-Anderson Act socialize costs of nuclear energy. In the case of the NWPA, the industry pays the DOE a tenth of a penny for each kilowatt-hour of nuclear energy sold to fund waste disposal activities.63 The Price-Anderson Act also requires generators to contribute to a fund, but the federal treasury would likely cover much of the liabilities associate with a nuclear disaster.64

#### And, loan guarantees reduce financial uncertainty and boost investment

Adams 10—Publisher of Atomic insights Was in the Navy for 33 years Spent time at the Naval Academy Has experience designing and running small nuclear plants (Rod, Concrete Action to Follow Strongly Supportive Words On Building New Nuclear Power Plants, atomicinsights.com/2010/01/concrete-action-to-follow-strongly-supportive-words-on-building-new-nuclear-power-plants.html)

Loan guarantees are important to the nuclear industry because the currently available models are large, capital intensive projects that need a stable regulatory and financial environment. The projects can be financed because they will produce a regular stream of income that can service the debt and still provide a profit, but that is only true if the banks are assured that the government will not step in at an inopportune time to halt progress and slow down the revenue generation part of the project. Bankers do not forget history or losses very easily; they want to make sure that government decisions like those that halted Shoreham, Barnwell’s recycling facility or the Clinch River Breeder Reactor program are not going to be repeated this time around. For the multi-billion dollar projects being proposed, bankers demand the reassurance that comes when the government is officially supportive and has some “skin in the game” that makes frivolous bureaucratic decisions to erect barriers very expensive for the agency that makes that decision. I have reviewed the conditions established for the guarantee programs pretty carefully – at one time, my company ([Adams Atomic Engines, Inc.](http://www.atomicengines.com)) was considering filing an application. The loan conditions are strict and do a good job of protecting government interests. They were not appropriate for a tiny company, but I can see where a large company would have less trouble complying with the rules and conditions. The conditions do allow low or no cost intervention in the case of negligence or safety issues, but they put the government on the hook for delays that come from bad bureaucratic decision making.

#### Manhattan Project approach key to catalyze quick investment in IFRs – perception is non-unique, there is government investment now

**Kirsch 9** [Steve Kirsch, founder and CEO of multiple tech companies collectively worth over %241 billion and MS in Electrical Engineering and Computer Science from MIT, November 2009, "Why We Should Build an Integral Fast Reactor Now,"]

Q. If this is really so good, how come GE isn't building S-PRISM on their own nickel?¶ Nobody wants to risk it since it isn't a slam dunk. You don't get a reward if you solve global warming. And government funding doesn't seem to be so easy. DOE tried to get funding for GNEP (which included IFR technology) and got shot down (so far).¶ GE is a large conservative corporation. They already service a fleet of lightwater reactors, are building more of them around the world, and have the promise of yet more. It's hard enough in this country to move into new levels of reactor technology without trying to leapfrog straight into the 4th generation. Their 3rd generation ESBWR is in the 5th round of NRC certification, whereas the S-PRISM (a souped up and more developed version of the PRISM) isn't at the starting gate. These things take years at the glacial pace of the NRC, though of course if President Obama decided to go all Manhattan project on it we could most definitely get there quickly enough. If GE started pushing 4th generation breeder reactors, can you imagine the hue and cry from the antie groups? What's their incentive to do that? If they're convinced that ultimately we'll end up at 4th generation reactors anyway and they can make plenty of dough and keep a low profile just taking the go slow approach, don't you imagine that's exactly what they'll do? Besides, conceivably another country with whom we have nuclear technology sharing agreements might very well certify and build it before the NRC ever gets out of the starting gate, which would make it much easier for the eventual NRC certification. Q. If this is really so good, how come someone in government isn't trying to get it restarted?¶ The DOE is attempting to resuscitate fast-reactor technology, as part of the GNEP (Global Nuclear Energy Partnership) initiative. See¶ http://www.gnep.energy.gov/gnepPRs/gnepPR011007.html, and http://www.gnep.energy.gov/.¶ The IFR is one form of fast-reactor technology (metallic fuel with pyroprocessing), but there are others -- inferior, according to the IFR scientists. The important thing these days is to get the U.S. back into a leadership role in the development and management of nuclear power, recognizing that recycling in fast reactors is necessary if the long-lived waste is to be consumed, and if the full energy potential of the uranium is to be exploited. The GNEP would resuscitate fast-reactor technology in this country.

#### Plan is modeled internationally

**Blees et al** 11 (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) [http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/](http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http%3A//bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/)

There are many compelling reasons to pursue the rapid demonstration of a full-scale IFR, as a lead-in to a subsequent global deployment of this technology within a relatively short time frame. Certainly the urgency of climate change can be a potent tool in winning over environmentalists to this idea. Yet political expediency—due to widespread skepticism of anthropogenic causes for climate change—suggests that the arguments for rolling out IFRs can be effectively tailored to their audience. Energy security—especially with favorable economics—is a primary interest of every nation.¶ The impressive safety features of new nuclear power plant designs should encourage a rapid uptick in construction without concern for the spent fuel they will produce, for all of it will quickly be used up once IFRs begin to be deployed. It is certainly manageable until that time. Burying spent fuel in non-retrievable geologic depositories should be avoided, since it represents a valuable clean energy resource that can last for centuries even if used on a grand scale.¶ Many countries are now beginning to pursue fast reactor technology without the cooperation of the United States, laboriously (and expensively) re-learning the lessons of what does and doesn’t work. If this continues, we will see a variety of different fast reactor designs, some of which will be less safe than others. Why are we forcing other nations to reinvent the wheel? Since the USA invested years of effort and billions of dollars to develop what is arguably the world’s safest and most efficient fast reactor system in the IFR, and since several nations have asked us to share this technology with them (Russia, China, South Korea, Japan, India), there is a golden opportunity here to develop a common goal—a standardized design, and a framework for international control of fast reactor technology and the fissile material that fuels them. This opportunity should be a top priority in the coming decade, if we are serious about replacing fossil fuels worldwide with sufficient pace to effectively mitigate climate change and other environmental and geopolitical crises of the 21st century.

#### IFR’s S-PRISM design is super safe

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

Metal Fuel: The Ultimate Safety Valve¶ One of the most important of the many superlatives of the IFR is its use of a metal fuel comprised of uranium, plutonium and zirconium, and the ingenious manner in which the Argonne team solved the problems of fuel expansion and fuel fabrication, as well as the potentially dangerous overheating scenario. Unlike the fuel fabrication of oxide-fueled reactors that requires the dimensions of the fuel pellets to be uniform to very exacting tolerances, the metal fuel for the IFR can be simply injected into molds and then cooled and inserted into metal tubes (cladding) with a great deal of dimensional tolerance, with a sodium bond filling any voids. If an accident situation occurs that would cause the core to overheat, such as a loss of coolant flow accident, the metal fuel itself will expand, causing neutron leakage to terminate the chain reaction, relying on nothing but the laws of physics.¶ The passive safety characteristics of the IFR were tested in EBR-II on April 3, 1986, against two of the most severe accident events postulated for nuclear power plants. The first test (the Loss of Flow Test) simulated a complete station blackout, so that power was lost to all cooling systems. The second test (the Loss of Heat Sink Test) simulated the loss of ability to remove heat from the plant by shutting off power to the secondary cooling system. In both of these tests, the normal safety systems were not allowed to function and the operators did not interfere. The tests were run with the reactor initially at full power.¶ In both tests, the passive safety features simply shut down the reactor with no damage. The fuel and coolant remained within safe temperature limits as the reactor quickly shut itself down in both cases. Relying only on passive characteristics, EBR-II smoothly returned to a safe condition without activation of any control rods and without action by the reactor operators. The same features responsible for this remarkable performance in EBR-II will be incorporated into the design of future IFR plants, regardless of how large they may be [xi].¶ While the IFR was under development, a consortium of prominent American companies led by General Electric collaborated with the IFR team to design a commercial-scale reactor based upon the EBR-II research. This design, currently in the hands of GE, is called the PRISM (Power Reactor Innovative Small Module). A somewhat larger version (with a power rating of 380 MWe) is called the S-PRISM. As with all new nuclear reactor designs (and many other potentially hazardous industrial projects), probabilistic risk assessment studies were conducted for the S-PRISM. Among other parameters, the PRA study estimated the frequency with which one could expect a core meltdown. This occurrence was so statistically improbable as to defy imagination. Of course such a number must be divided by the number of reactors in service in order to convey the actual frequency of a hypothetical meltdown. Even so, if one posits that all the energy humanity requires were to be supplies solely by IFRs (an unlikely scenario but one that is entirely possible), the world could expect a core meltdown about once every 435,000 years [xii]. Even if the risk assessment understated the odds by a factor of a thousand, this would still be a reactor design that even the most paranoid could feel good about.

#### IFR fuel can be obtained from seawater – makes energy infinite

Archambeauet all 11 [The Integral Fast Reactor (IFR): An Optimized Source for Global Energy Needs, Charles Archambeau, Science Council for Global Initiatives, Randolph Ware, Cooperative Institute for Research in Environmental Sciences, Tom Blees, National Center for Atmospheric Research, Barry Brook, University of Adelaide, Jerry Peterson, Argonne National Laboratory,¶ Yoon Chang, University of Colorado, February 2011]

The pyroprocessor unit can be used as a stand-alone system to process LWR waste from¶ any open cycle reactor into fuel for IFR closed cycle reactors. The depleted Uranium¶ produced by the enrichment of Uranium ore can also be processed to generate additional¶ IFR fuel. The current amount of LWR waste, plus the amount of depleted Uranium in¶ stock piles world-wide, is sufficient to supply fuel to all the IFR plants needed and in fact¶ to supply the world's required energy for about 1000 years.3 The problem of storage of¶ current LWR waste and depleted Uranium waste from refining of mined Uranium is¶ therefore solved by pyroprocessor generation of IFR fuel, along with a relatively small¶ mass of short-lived fission products which can be easily and safely stored. Uranium can¶ also be extracted from sea water using IFR power sources (see, for example, Cohen, 1983).¶ Because Uranium is constantly added to seawater by erosion processes, then the IFR fuel¶ source is effectively unlimited. Therefore, IFR power plants do not require fuel from¶ regular mining operations, as does a LWR powered plant, but can use pyroprocessor¶ generated fuel essentially indefinitely. In this sense the IFR is a "renewable" energy source¶ which can be expanded, essentially indefinitely, to meet demand.

#### Government support is vital-~--it overcomes financial barriers to nuclear that the market cannot

Yanosek 12 Kassia, entrepreneur-in-residence at Stanford University’s Steyer-Taylor Center for Energy Policy and Finance and a private equity investor in the energy sector as a principal at Quadrant Management and Founder of Tana Energy Capital LLC, " Financing Nuclear Power in the US", Spring, energyclub.stanford.edu/index.php/Journal/Financing\_Nuclear\_Power\_by\_Kassia\_Yanosek

Over the course of the last decade, it appeared that concerns about carbon emissions, aging coal fleets, and a desire for a diversified generation base were reviving the U.S. utility sector interest in building new nuclear plants. Government and companies worked closely on design certification for Generation III reactors, helping to streamline the licensing process. New loan guarantees from the federal government targeted for nuclear projects were created as part of the 2005 Energy Policy Act. Consequently, dozens of projects entered the planning stages. Following more than 30 years in which no new units were built, it looked as if the U.S. nuclear industry was making significant headway. However, it is yet to be seen how many new nuclear projects will actually make it beyond blueprints due to one of the largest barriers to new nuclear construction: financing risk. Large upfront capital costs, a complex regulatory process, uncertain construction timelines, and technology challenges result in a risk/return profile for nuclear projects that is unattractive for the capital markets without supplementary government or ratepayer support. To many investors, nuclear seems too capital-intensive. Nuclear energy has attractive qualities in comparison to other sources of electricity. A primary motivation to pursue the development of nuclear energy in the U.S. has been its low operating fuel costs compared with coal, oil, and gas-fired plants. Over the lifetime of a generating station, fuel makes up 78% of the total costs of a coal-fired plant. For a combined cycle gas-fired plant, the figure is 89%. According to the Nuclear Energy Institute, the costs for nuclear are approximately 14%, and include processing, enrichment, and fuel management/disposal costs. Today’s low natural gas prices have enhanced the prospects of gas-fired power, but utilities still remain cautious about over-investing in new natural gas generation given the historical volatility of prices. Furthermore, nuclear reactors provide baseload power at scale, which means that these plants produce continuous, reliable power to consistently meet demand. In contrast, renewable energies such as wind or solar are only available when the wind blows or the sun shines, and without storage, these are not suitable for large-scale use. Finally, nuclear energy produces no carbon emissions, which is an attractive attribute for utilities that foresee a carbon tax being imposed in the near future. Given nuclear’s benefits, one may wonder why no new nuclear units have been ordered since the 1970s. This hiatus is in great part due to nuclear’s high cost comparative to other alternatives, and its unique set of risks. As a result, financing nuclear has necessitated government involvement, as the cost of nuclear typically exceeds that of the cost of conventional generation technologies such as coal and natural gas fired generation on a levelized cost of energy (LCOE) basis. LCOE represents the present value of the total cost of building and operating a generating plant over its financial life, converted to equal annual payments and amortized over expected annual generation, and is used to compare across different power generation technologies. For both regulated utilities and independent power producers, nuclear is unattractive if the levelized cost exceeds that of other technologies, since state utility commissions direct regulated utilities to build new capacity using the technology with the lowest LCOE. Furthermore, capital costs are inherently high, ranging in the billions or tens of billions of dollars, and are compounded by financing charges during long construction times. Without government support, financing nuclear is currently notpossible in the capital markets. Recently, Constellation Energy and NRG separately pulled the plug on new multi-billion dollar plants, citing financing problems. Projects, however, will get done on a one-off basis. Southern Company’s Vogtle Plant in Eastern Georgia is likely to be the sponsor of the first new generation to be constructed, taking advantage of local regulatory and federal support. Two new reactors of next-generation technology are in the permitting stage, which will bring online 2,200 megawatts (MW) of new capacity, and will cost $14 billion. The project will take advantage of tax credits and loan guarantees provided in the 2005 Energy Policy Act.

#### **IFR’s are really cheap – existing coal plants can be retrofitted – solves warming**

Archambeauet all 11 [The Integral Fast Reactor (IFR): An Optimized Source for Global Energy Needs, Charles Archambeau, Science Council for Global Initiatives, Randolph Ware, Cooperative Institute for Research in Environmental Sciences, Tom Blees, National Center for Atmospheric Research, Barry Brook, University of Adelaide, Jerry Peterson, Argonne National Laboratory,¶ Yoon Chang, University of Colorado, February 2011]

The new features of the IFR systems with pyroprocessing are such that the cost of¶ electrical energy production is estimated to be quite low, in the range below $.01 per¶ kilowatt-hour for an IFR. (For comparison, natural gas fuel cost was at $.05 per kilowatthour,¶ and coal was at about $.03 per kilowatt-hour, while LWR nuclear power was at $.02¶ per kilowatt-hour.) The G.E. estimated building cost of the S-Prism reactor (Fletcher,¶ 2006) is $1300/kw, where this cost assumes some cost savings due to mass production and¶ modular construction. For a commercial level gigawatt reactor (using 3 modular S-Prism¶ reactors with 380 MW of power from each) the cost would total $1.3 billion dollars per¶ one gigawatt plant. These nuclear plants are essentially carbon dioxide emissions free, and¶ in general produce no atmospheric pollution. Further, all the Uranium fuel can be provided¶ from processing the stock piles of spent and depleted Uranium fuel. Therefore, no Uranium¶ mining and associated pollution will occur. Likewise, IFR waste material is minimal and¶ short-lived so that no pollution will occur from this source. Consequently, significant¶ reduction in greenhouse gases, and a variety of other dangerous pollutants, can be¶ immediately achieved if these IFR plants are used to replace the furnaces in coal burning¶ power plants which exist in profusion world-wide. Here the infrastructure at existing coal fueled plants, such as electric power lines, water sources and conduits, steam turbines, etc.,¶ can all be simply converted and used in the nuclear powered plant. Hence, costs of¶ building complete power plants and their electrical connections to the grid can be¶ minimized while the impact on global warming and pollution related diseases can be¶ maximized by replacing the worst of the polluters. Further, it is urgent that we move¶ quickly to strongly and immediately control CO2 gas emissions to drastically slow global¶ warming. Clearly, the costs are not prohibitive since construction of one large stand-alone¶ pyroprocessing plant, at about 6 billion dollars, and only about 10 of the large IFR¶ powered plants, costing under 20 billion dollars, will go a long way toward strongly¶ dampening the massive production of CO2 emissions from existing electricity power plants¶ in the U.S.

## 2ac

### case

#### We can build them really quickly

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

How Fast Can We Build Them?¶ During France’s nuclear building boom they built an average of six nuclear power plants per year, culminating in a situation that provides them with about 80% of their electrical needs while making electricity their fourth-largest export earner. Gross Domestic Product (GDP) can be used as a rough guide to what a given country can financially bear for such a project, keeping in mind that France proceeded without the sense of urgency that the world today should certainly be ready to muster. There are six countries with higher GDPs than France, all of whom already possess the technology to build fast reactors: USA, China, Japan, India (they’re building one now), Germany, and the United Kingdom. Add Canada and Russia (which already has a commercial fast reactor running and is planning more), then tally up the GDP of these eight countries. At the rate of 6 plants per year (~ 1GW each) at the equivalent of France’s GDP, these countries alone could afford to build about 117 power plants per year, even without any greater urgency than the French brought to bear on their road to energy independence.¶ Consider that there are about 400 nuclear power plants in the world today. At this entirely feasible rate of construction we could more than double the planet’s nuclear capacity in just four years. Remember, the French accomplished their transformation with non-modular, albeit standardized, Gen II designs. Modular construction, passive safety systems, and factory fabrication, divided among companies all over the planet, could realistically convert the planet’s electricity production to virtually all nuclear in a couple decades, with abundant surplus electricity for ancillary uses such as desalination and the production of liquid fuels such as ammonia.

#### It’s anthropogenic – carbon isotope analysis, satellites, stratosphere measurements

**Prothero 12** [Donald R. Prothero, Professor of Geology at Occidental College and Lecturer in Geobiology at the California Institute of Technology, 3-1-2012, "How We Know Global Warming is Real and Human Caused," Skeptic, vol 17 no 2, EBSCO]

\* "I agree that climate is changing, but I'm skeptical that humans are the main cause, so we shouldn't do anything."¶ This is just fence sitting. A lot of reasonable skeptics deplore the right wing's rejection of the reality of climate change, but still want to be skeptical about the cause. If they want proof, they can examine the huge array of data that points directly to human caused global warming.22 We can directly measure the amount of carbon dioxide humans are producing, and it tracks exactly with the amount of increase in atmospheric carbon dioxide. Through carbon isotope analysis, we can show that this carbon dioxide in the atmosphere is coming directly from our burning of fossil fuels, not from natural sources. We can also measure the drop in oxygen as it combines with the increased carbon levels to produce carbon dioxide. We have satellites in space that are measuring the heat released from the planet and can actually see the atmosphere getting warmer. The most crucial evidence emerged only within the past few years: climate models of the greenhouse effect predict that there should be cooling in the stratosphere (the upper layer of the atmosphere above 10 km or 6 miles in elevation), but warming in the troposphere (the bottom layer below 10 km or 6 miles), and that's exactly what our space probes have measured. Finally, we can rule out any other suspects (see above): solar heat is decreasing since 1940, not increasing, and there are no measurable increases in cosmic rays, methane, volcanic gases, or any other potential cause. Face it- it's our problem.

### States

#### Federal guarantees are vital to getting investors on board – superior credit rating

**Sullivan and Walsh, 8 -** Mary Anne Sullivan, partner in Hogan & Hartson's energy practice, has more than 25 years of experience as an energy lawyer. She previously served as general counsel of the U.S. Department of Energy and as deputy general counsel for environment and nuclear programs. Sam Walsh is an associate at Hogan & Hartson (“Federal Loan Guarantees,” Electric Light and Power, Mar/April, ABI Inform)

In their rulemaking comments, Wall Street firms emphasized that a loan guarantee must represent the unconditional commitment of the full faith and credit of the United States if the program is to succeed in attracting affordable private investment to innovative technologies. The final rule seems to have calmed concerns that the guarantees might be conditioned in a way that would preclude the "AAA" rating for the federally guaranteed debt that the program was designed to assure. The guarantees will be absolute, absent fraud or material misrepresentation by the holder of a guaranteed obligation.

#### State incentives fail – federal loan guarantees attract substantially more investment capital

**NEI, 11** – Nuclear Energy Institute “Issues in Focus Loan Guarantees For Clean Energy Development” http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCkQFjAB&url=http%3A%2F%2Fwww.nei.org%2Ffilefolder%2Floanguaranteefastfacts.pdf&ei=PCJsUNTiJKbA2gXymYAg&usg=AFQjCNEzvSlK0TiMZStFOzXeQDIf76vQBw)

 State governments are doing their part. Many of the states where new nuclear plants are planned – including Florida, Virginia, Texas, Louisiana, Mississippi, North Carolina and South Carolina – have passed legislation or implemented new regulations to encourage construction of new nuclear power plants by providing financing support and/or assurance of investment recovery.

 By itself, this state support is not sufficient. The federal government must also provide financing support for deployment of clean energy technologies in the numbers necessary to address growing U.S. electricity needs and reduce carbon emissions. The clean energy loan guarantee program authorized by the Energy Policy Act of 2005 is equally important.

 Although tax stimulus – either in the form of tax credits or more favorable depreciation terms – can play an important role in encouraging investment, loan guarantees are a very efficient way to mobilize private capital. Tax benefits have a direct, dollar-for-dollar impact on the federal budget. Even if the credit subsidy cost associated with a loan guarantee is appropriated, loan guarantees provide substantial leverage. Tens of millions of dollars in appropriations to support a loan guarantee program can leverage tens of billions of dollars in private sector investment.

#### Certainty is essential – only effective method of catalyzing investment

**Trembath, 11** [2/4/11, [Nuclear Power and the Future of Post-Partisan Energy Policy](http://leadenergy.org/2011/02/the-nuclear-option-in-a-post-partisan-approach-on-energy/), Alex Trembath is a policy associate in the Energy and Climate Program at Breakthrough. He is the lead or co-author of several Breakthrough publications, including the 2012 report "Beyond Boom and Bust: Putting Clean Tech on a Path to Subsidy Independence" and "Where the Shale Gas Revolution Came From." Alex is a graduate of University of California at Berkeley, <http://leadenergy.org/2011/02/the-nuclear-option-in-a-post-partisan-approach-on-energy/>]

If there is one field of the energy sector for which certainty of political will and government policy is essential, it is nuclear power. High up front costs for the private industry, extreme regulatory oversight and public wariness necessitate a committed government partner for private firms investing in nuclear technology. In a new [report](http://www.thirdway.org/publications/370) on the potential for a “nuclear renaissance,” Third Way references the failed cap-and-trade bill, delaying tactics in the House vis-a-vis EPA regulations on CO₂, and the recent election results to emphasize the difficult current political environment for advancing new nuclear policy. The report, “The Future of Nuclear Energy,” makes the case for political certainty: “It is difficult for energy producers and users to estimate the relative price for nuclear-generated energy compared to fossil fuel alternatives (e.g. natural gas)–an essential consideration in making the major capital investment decision necessary for new energy production that will be in place for decades.” Are our politicians willing to match the level of certainty that the nuclear industry demands? Lacking a suitable price on carbon that may have been achieved by a cap-and-trade bill removes one primary policy instrument for making nuclear power more cost-competitive with fossil fuels. The impetus on Congress, therefore, will be to shift from demand-side “pull” energy policies (that increase demand for clean tech by raising the price of dirty energy) to [supply-side “push” policies](http://leadenergy.org/2010/09/supply-demand-energy-innovation/), or industrial and innovation policies. Fortunately, there are signals from political and thought leaders that a package of policies may emerge to incentivize alternative energy sources that include nuclear power. One place to start is the recently deceased American Power Act, addressed above, authored originally by Senators Kerry, Graham and Lieberman. Before its final and disappointing incarnation, the bill [included](http://www.huffingtonpost.com/2010/05/12/american-power-act-photos_n_573643.html#s90041&title=undefined) provisions to increase loan guarantees for nuclear power plant construction in addition to other tax incentives. Loan guarantees are probably the most important method of government involvement in new plant construction, given the high capital costs of development. One wonders what the fate of the bill, or a less ambitious set of its provisions, would have been had Republican Senator Graham not abdicated and removed any hope of Republican co-sponsorship. But that was last year. The changing of the guard in Congress makes this a whole different game, and the once feasible support for nuclear technology on either side of the aisle must be reevaluated. A New York Times [piece](http://www.nytimes.com/2010/11/17/business/energy-environment/17NUCLEAR.html) in the aftermath of the elections forecast a difficult road ahead for nuclear energy policy, but did note Republican support for programs like a waste disposal site and loan guarantees. Republican support for nuclear energy has roots in the most significant recent energy legislation, the Energy Policy Act of 2005, which passed provisions for nuclear power with wide bipartisan support. Reaching out to Republicans on policies they have supported in the past should be a goal of Democrats who wish to form a foundational debate on moving the policy forward. There are also signals that key Republicans, notably [Lindsey Graham](http://washingtonindependent.com/99171/graham-circulating-clean-energy-standard) and [Richard Lugar](http://www.plattsenergyweektv.com/story.aspx?storyid=132784&catid=293), would throw their support behind a clean energy standard that includes nuclear and CCS. Republicans in Congress will find intellectual support from a group that AEL’s Teryn Norris coined [“innovation hawks,”](http://leadenergy.org/2011/01/the-rise-of-innovation-hawks/) among them Steven Hayward, David Brooks and George Will. Will has been [particularly outspoken](http://www.newsweek.com/2010/04/08/this-nuclear-option-is-nuclear.html) in support of nuclear energy, writing in 2010 that “it is a travesty that the nation that first harnessed nuclear energy has neglected it so long because fads about supposed ‘green energy’ and superstitions about nuclear power’s dangers.” The extreme reluctance of Republicans to cooperate with Democrats over the last two years is only the first step, as any legislation will have to overcome Democrats’ traditional opposition to nuclear energy. However, here again there is reason for optimism. Barbara Boxer and John Kerry bucked their party’s long-time aversion to nuclear in a precursor bill to APA, and Kerry continued working on the issue during 2010. Jeff Bingaman, in a speech earlier this week, reversed his position on the issue by calling for the inclusion of nuclear energy provisions in a clean energy standard. The Huffington Post [reports](http://www.huffingtonpost.com/2011/02/01/sen-jeff-bingaman-backs-n_n_816864.html) that “the White House reached out to his committee [Senate Energy] to help develop the clean energy plan through legislation.” This development in itself potentially mitigates two of the largest obstacle standing in the way of progress on comprehensive energy legislation: lack of a bill, and lack of high profile sponsors. Democrats can also direct [Section 48C](http://leadenergy.org/2010/12/clean-energy-financing-first-steps-towards-post-partisan-effort/#more-3320) of the American Recovery and Reinvestment Act of 2009 towards nuclear technology, which provides a tax credit for companies that engage in clean tech manufacturing. Democrats should not give up on their policy goals simply because they no longer enjoy broad majorities in both Houses, and Republicans should not spend all their time holding symbolic repeal votes on the Obama Administration’s accomplishments. The lame-duck votes in December on “Don’t Ask, Don’t Tell,” the tax cut deal and START indicate that at least a few Republicans are willing to work together with Democrats in a divided Congress, and that is precisely what nuclear energy needs moving forward. It will require an agressive push from the White House, and a concerted effort from both parties’ leadership, but the road for forging bipartisan legislation is not an impassable one. The politician with perhaps the single greatest leverage over the future of nuclear energy is President Obama, and his rhetoric matches the challenge posed by our aging and poisonous energy infrastructure. “This is our generation’s Sputnik moment,” announced Obama recently. Echoing the calls of presidents past, the President used his [State of the Union](http://www.slate.com/id/2281847/) podium to signal a newly invigorated industrialism in the United States. He advocated broadly for renewed investment in infrastructure, education, and technological innovation. And he did so in a room with many more members of the opposition party than at any point during the first half of his term. The eagerness of the President to combine left and right agendas can hopefully match the hyper-partisan bitterness that dominates our political culture, and nuclear power maybe one sector of our economy to benefit from his political leadership.

#### Doesn’t solve the case – restrictions are codified in federal law – prevents the **requisite licensing**, means the cp fails to cause commercialization – that’s 1ac Martin AND

MIT, 10 [Massachusetts Institute of Technology, “Nuclear Energy Research and Development Roadmap: Report to Congress”, April 2010, http://ocw.mit.edu/courses/nuclear-engineering/22-033-nuclear-systems-design-project-fall-2011/readings/MIT22\_033F11\_read\_core\_doe.pdf]

 In the United States, it is the responsibility of industry to design, construct, and operate commercial nuclear power plants. However, DOE has statutory authority under the Atomic Energy Act to promote and support nuclear energy technologies for commercial applications. In general, appropriate government roles include researching high-potential technologies beyond the investment horizon of industry and also reducing the technical risks of new technologies. In the case of new commercial reactor designs, potential areas of NE involvement could include: Enabling new technologies to be inserted into emerging and future designs by providing access to unique laboratory resources for new technology development and, where appropriate, demonstration. • Working through the laboratories and universities to provide unique expertise and facilities to industry for R&D in the areas of: o Innovative concepts and advanced technologies. o Fundamental phenomena and performance data. o Advanced modeling and simulation capabilities. APRIL 2010 22 34 NUCLEAR ENERGY RESEARCH AND DEVELOPMENT ROADMAP o New technology testing and, if appropriate, demonstration. o Advanced manufacturing methods. Representative R&D activities that support each of the roles stated above are presented below. The level of DOE investment relative to industry investment will vary across the spectrum of these activities, with a generally increasing trend in DOE investment for longer-term activities. Finally, there is potential to leverage and amplify effective U.S. R&D through collaborations with other nations through multilateral and bilateral agreements including the Generation IV International Forum, which is investigating multiple advanced reactor concepts. DOE is also a participant in OECD/NEA and IAEA initiatives that bear directly on the development and deployment of new reactor systems.

RGGI fails-leakage. Power companies buy from out of state. Net decrease in emissions never occurs.

Danish in 08 (Kyle Danish, Shelley Fidler, Andrea Campbell, Kevin Gallagher, “Weekly Climate Change Policy Update”, February 11 2008, http://www.vnf.com/news-alerts-238.html)

Pennsylvania Not Likely To Join RGGI Due to Fears Over Leakage.Kathleen McGinty, Secretary of the Pennsylvania Department of Environmental Protection, stated that fears over “leakage” prevent the state from joining the regional GHG emissions cap-and-trade program. Ms. McGinty asserted that the RGGI design, which regulates power producers rather than energy consumers, allows power producers regulated by the cap to meet their compliance obligations by reducing their own generation and importing power from outside the RGGI states, which has the effect of offsetting any emission reductions in the RGGI region with higher emissions outside the region – an effect referred to as “leakage.” She said that Pennsylvania instead is pursuing a consumption-based approach to regulating GHG emissions. While noting problems with some RGGI design decisions, Ms. McGinty said that RGGI and other regional cap-and-trade programs have been helpful in spurring Congress to pursue the creation of a national cap-and-trade program.

#### Altering state deficit spending to allow limited deficits reckless spending and diminishes overall revenue

**Joyner 9** [“[Five Year Balanced Budget](http://www.outsidethebeltway.com/archives/five_year_balanced_budget/)”, February 22, 2009, James Joyner is the publisher of [Outside the Beltway](http://outsidethebeltway.com) and the managing editor of the [Atlantic Council](http://acus.org), college professor with a PhD in political science from The University of Alabama, http://www.outsidethebeltway.com/archives/five\_year\_balanced\_budget/]

¶ In bad times, states could deficit spend — by no more than the surpluses of the previous four years. In good times, states would be forced to bank surpluses — particularly if the past few years were economically tough.¶ Given that legislators are mostly elected on two-year cycles, the most likely effect of this would be to exacerbate the problem. They’d still spend like drunken sailers when the money’s available, deficit spend when allowed, and then have draconian cuts if necessary in the fifth year. Or come up with cute budgetary tricks to create a budget that’s “balanced” on paper by shifting the spending to January 1 of the next year or somesuch.

#### Congress key

Fertel, 05 - Senior Vice President And Chief Nuclear Officer Nuclear Energy Institute (Marvin, CQ Congressional Testimony, “NUCLEAR POWER'S PLACE IN A NATIONAL ENERGY POLICY,” 4/28, lexis) //DH

Industry and government will be prepared to meet the demand for new emission-free baseload nuclear plants in the 2010 to 2020 time frame only through a sustained focus on the necessary programs and policies between now and then. As it has in the past, strong Congressional oversight will be necessary to ensure effective and efficient implementation of the federal government's nuclear energy programs, and to maintain America's leadership in nuclear technology development and its influence over important diplomatic initiatives like nonproliferation. Such efforts have provided a dramatic contribution to global security, as evidenced by the U.S.-Russian nonproliferation agreement to recycle weapons-grade material from Russia for use in American reactors. Currently, more than 50 percent of U.S. nuclear power plant fuel depends on converted Russian warhead material. Nowhere is continued congressional oversight more important than with DOE's program to manage the used nuclear fuel from our nuclear power plants. Continued progress toward a federal used nuclear fuel repository is necessary to support nuclear energy's vital role in a comprehensive national energy policy and to support the remediation of DOE defense sites. Since enactment of the 1982 Nuclear Waste Policy Act, DOE's federal repository program has repeatedly overcome challenges, and challenges remain before the Yucca Mountain facility can begin operation. But as we address these issues, it is important to keep the overall progress of the program in context. There is international scientific consensus that a deep geologic repository is the best solution for long-term disposition of used military and commercial nuclear power plant fuel and high-level radioactive byproducts. The Bush administration and Congress, with bipartisan support, affirmed the suitability of Yucca Mountain for a repository in 2002. Over the past three years, the Energy Department and its contractors have made considerable progress providing yet greater confirmation that this is the correct course of action and that Yucca Mountain is an appropriate site for a national repository. --During the past year, federal courts have rejected significant legal challenges by the state of Nevada and others to the Nuclear Waste Policy Act and the 2002 Yucca Mountain site suitability determination. These challenges questioned the constitutionality of the Yucca Mountain Development Act and DOE's repository system, which incorporates both natural and engineered barriers to contain radioactive material safely. In the coming year, Congress will play an essential role in keeping this program on schedule, by taking the steps necessary to provide increased funding for the project in fiscal 2006 and in future years. Meeting DOE's schedule for initial repository operation requires certainty in funding for the program. This is particularly critical in view of projected annual expenditures that will exceed $1 billion beginning in fiscal 2007. Meeting these budget requirements calls for a change in how Congress provides funds to the project from monies collected for the Nuclear Waste Fund. The history of Yucca Mountain funding is evidence that the current funding approach must be modified. Consumer fees (including interest) committed to the Nuclear Waste Fund since its f6rmation in 1983 total more than $24 billion. Consumers are projected to pay between $750 million to $800 million to the fund each year, based on electricity generated at the nation's 103 reactors. This is more than $2 million per day. Although about $8 billion has been used for the program, the balance in the fund is nearly $17 billion. In each of the past several years, there has been a gap between the annual fees paid by consumers of electricity from nuclear power plants and disbursements from the fund for use by DOE at Yucca Mountain. Since the fund was first established, billions of dollars paid by consumers of electricity from nuclear power plants to the Nuclear Waste Fund-intended solely for the federal government's used fuel program-in effect have been used to decrease budget deficits or increase surpluses. The industry believes that Congress should change the funding mechanism for Yucca Mountain so that payments to the Nuclear Waste Fund can be used only for the project and be excluded from traditional congressional budget caps. Although the program should remain subject to congressional oversight, Yucca Mountain appropriations should not compete each year for funding with unrelated programs when Congress directed a dedicated funding stream for the project. The industry also believes that it is appropriate and necessary to consider an alternative perspective on the Yucca Mountain project. This alternative would include an extended period for monitoring operation of the repository for up to 300 years after spent fuel is first placed underground. The industry believes that this approach would provide ongoing assurance and greater confidence that the repository is performing as designed, that public safety is assured, and that the environment is protected. It would also permit DOE to apply evolving innovative technologies at the repository. Through this approach, a scientific monitoring program would identify additional scientific information that can be used in repository performance models. The project then could update the models, and make modifications in design and operations as appropriate. Congressional committees like this one can help ensure that DOE does not lose sight of its responsibility for used nuclear fuel management and disposal, as stated by Congress in the Nuclear Waste Policy Act of 1982. The industry fully supports the fundamental need for a repository so that used nuclear fuel and the byproducts of the nation's nuclear weapons program are securely managed in an underground, specially designed facility. World-class science has demonstrated that Yucca Mountain is the best site for that facility. A public works project of this magnitude will inevitably face challenges. Yet, none is insurmountable. DOE and its contractors have made significant progress on the project and will continue to do so as the project enters the licensing phase. Congressional oversight also can play a key role in maintaining and encouraging the stability of the NRC's regulatory process. Such stability is essential for our 103 operating nuclear plants and equally critical in licensing new nuclear power plants. Congress played a key role several years ago in encouraging the NRC to move toward a new oversight process for the nation's nuclear plants, based on quantitative performance indicators and safety significance. Today's reactor oversight process is designed to focus industry and NRC resources on equipment, components and operational issues that have the greatest importance to, and impact on, safety. The NRC and the industry have worked hard to identify and implement realistic security requirements at nuclear power plants. In the three-and-a-half years since 9/11, the NRC has issued a series of requirements to increase security and enhance training for security programs. The industry complied-fully and rapidly. In the days and months following Sept. 11, quick action was required. Orders that implemented needed changes quickly were necessary. Now, we should return to the orderly process of regulating through regulations. The industry has spent more than $1 billion enhancing security since September 2001. We've identified and fixed vulnerabilities. Today, the industry is at the practical limit of what private industry can do to secure our facilities against the terrorist threat. NRC Chairman Nils Diaz and other commissioners have said that the industry has achieved just about everything that can be reasonably achieved by a civilian force. The industry now needs a transition period to stabilize the new security requirements. We need time to incorporate these dramatic changes into our operations and emergency planning programs and to train our employees to the high standards of our industry-and to the appropriately high expectations of the NRC. Both industry and the NRC need congressional oversight to support and encourage this kind of stability. CONCLUSION Electricity generated by America's nuclear power plants over the past half-century has played a key part in our nation's growth and prosperity. Nuclear power produces over 20 percent of the electricity used in the United States today without producing air pollution. As our energy demands continue to grow in years to come, nuclear power should play an even greater role in meeting our energy and environmental needs. The nuclear energy industry is operating its reactors safely and efficiently. The industry is striving to produce more electricity from existing plants. The industry is also developing more efficient, next-generation reactors and exploring ways to build them more cost-effectively. The public sector, including the oversight committees of the U.S. Congress, can help maintain the conditions that ensure Americans will continue to reap the benefits of our operating plants, and create the conditions that will spur investment in America's energy infrastructure, including new nuclear power plants. One important step is passage of comprehensive energy legislation that recognizes nuclear energy's contributions to meeting our growing energy demands, ensuring our nation's energy security and protecting our environment. Equally important, however, is the need to ensure effective and efficient implementation of existing laws, like the Nuclear Waste Policy Act, and to provide federal agencies with the resources and oversight necessary to discharge their statutory responsibilities in the most efficient way possible. The commercial nuclear power sector was born in the United States, and nations around the world continue to look to this nation for leadership in this technology and in the issues associated with nuclear power. Our ability to influence critical international policies in areas like nuclear nonproliferation, for example, depends on our ability to maintain a leadership role in prudent deployment, use and regulation of nuclear energy technologies here at home, in the United States, and on our ability to manage the technological and policy challenges-like waste management-that arise with all advanced technologies.

### QER

#### No implementation

Barlas, ‘12

[Stephen, Financial Executive Magazine, Jan/Feb, “Does the U.S. Really Need An Energy Policy?” http://wa-dcwriter.blogspot.com/2012/01/does-us-really-need-energy-policy.html]

But it is highly unlikely that Obama's Blueprint will lead to a firmer footing for U.S. energy security than past Blueprints from other presidents, or, perhaps more importantly, whether a Blueprint is even necessary. Obama's Blueprint policy is a loosely knit set of policies which focus on producing more oil at home and reducing dependence on foreign oil by developing cleaner alternative fuels and greater efficiency. The Blueprint is not the result of any particular deep thinking or strategy. The President's Council of Advisors on Science and Technology (PCAST) called for the development of such a strategy in its November 2010 Report to the President on Accelerating the Pace of Change in Energy Technologies Through an Integrated Federal Energy Policy. The PCAST called for a Quadrennial Technology Review (QTR) as the first step in preparing a Quadrennial Energy Review. The DOE completed the QTR in November 2011, six months after Obama published his Blueprint. Steven E. Koonin, Under Secretary for Science, DOE, says the QTR is limited in scope and all the DOE felt it could get done given budget and time. "Technology development absent an understanding and shaping of policy and market context in which it gets deployed is not a productive exercise," he states. At this point there is no indication that the DOE will even undertake the much more important QER, much less complete it any time soon. The larger reality is that any energy independence plan proposed by any U.S. President--whether based on a QER or not--has as much a chance of coming to fruition as Washington's hapless Redskins have of getting into the Super Bowl. In any case, the rhetoric of President after President aside, maybe the U.S. doesn't even need an energy independence or energy security policy. The biggest energy input for industrial and commercial business users is natural gas. Natural gas prices are incredibly important, both because the fuel is used directly to run industrial processes, heat facilities and commercial buildings, and make products such as fertilizers, pharmaceuticals, plastics and other advanced materials. Thanks to the Shale Revolution, the Energy Information Administration (EIA) forecasts natural gas prices will stay low for the foreseeable future, rising to $4.66 m/BTU in 2015 and $5.05 m/BTU in 2020. That is good news for the owners of 15,000 to 17,000 industrial boilers in this country, most of which use natural gas (and many of those who still use coal are switching to natural gas). In addition, companies such as Dow Chemical are restarting operations at facilities idled during the recession, Bayer is in talks with companies interested in building new ethane crackers at its two industrial parks in West Virginia, and Chevron Phillips Chemical and LyondellBasell, are considering expanding operations in the U.S. Fracking has also had a much less remarked-upon effect on petroleum prices, which are important to businesses with transportation fleets. New oil sources are spurting from the Bakken and Eagles Ford shale plays. U.S. oil prices have fallen from $133.88 a barrel of Texas intermediate crude in June 2008 to $86.07 today. The EIA predicts oil prices will rise to $94.58/bbl in 2015 and $108.10/bbl in 2020. Beyond the flood of natural gas washing over them, U.S. companies are also benefitting from three decades of investments--most of which made without federal subsidies or support--into facility energy efficiency. Ralph Cavanagh, Co-Director, Energy Program, Natural Resources Defense Council, member of Electricity Advisory Board at the DOE, says the most important single solution for U.S. businesses worried about energy prices and energy access is aggressive energy efficiency. "Energy independence is the wrong issue," he says. "It is reducing the cost of energy services and improving energy security. "U.S. business has done a tremendous job in energy efficiency over the past three decades," he states. "It takes less than one-half of a unit of energy to create $1 of economic value than it did in 1973. Industry has done that by upgrading the efficiency of process equipment and upgrading lighting." Others may well argue that the U.S. needs, and has always needed, an energy policy, but one narrowly targeted. Kenneth B Medlock III, PhD, Deputy Director, Energy Forum, James A Baker III Institute for Public Policy at Rice University, notes that the DOE and the Gas Research Institute helped develop, with federal funding, the horizontal drilling (i.e. fracking) technology that Mitchell Energy (now a part of Devon Energy) pioneered. "Government ought to be focused on research & development," he states. He also is a supporter of loan guarantees to promote investment activity in frontier technologies, and argues that as long as there are more good bets than bad bets in that kind of portfolio, the funds committed in total are a good investment. But spectacular failures like Solyndra and other less publicized busts such as Beacon Power's Chapter 11 filing kill the prospect of any additional congressional funding for energy loan guarantees of any kind. That is true even when legislation has bi-partisan support, which is the case for the Energy Savings and Industrial Competitiveness Act of 2011 (S. 1000) which would, among other things, provide grants for a revolving loan program designed to develop energy-saving technologies for industrial and commercial use. The bill passed the Senate Energy Committee by a vote of 18-3 in July. However, the Congressional Budget Office has pegged the cost of the bill's provisions at $1.2 billion over five years. That is a serious barrier to passage. And in any case, even if it did pass, the bill would simply authorize funding. Congressional appropriations committees would have to approve the money as part of the DOE's budget, which would be highly unlikely, Solyndra aside, since similar programs authorized by the 2005 and 2007 energy bills are still begging for appropriations.

#### White House blocks recommendation solvency

**Kirsh 11** (Steven T. Kirsh, Bachelor of Science and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology, "Why Obama should meet Till," 9/28/11) http://bravenewclimate.com/2011/09/28/why-obama-should-meet-till/-http://bravenewclimate.com/2011/09/28/why-obama-should-meet-till/

If you delegate this to someone else, nothing will happen. Here’s why. Delegating this letter downward from the White House to someone in DOE to evaluate will result in inaction and no follow up. I know this from past attempts that have been made. It just gets lost and there is no follow up. Every time. The guys at DOE want to do it, but they know that they will get completely stopped by OMB and OSTP. Both Carol Browner and Steven Chu asked former DOE nuclear management what to do about nuclear waste. They were told that using fast reactors and reprocessing was the way to go. But nothing happened. So Chu has given up trying. According to knowledgeable sources, the White House has told DOE in no uncertain terms, “do not build anything nuclear in the US.” It’s not clear who is making these decisions, but many people believe it is being driven by Steven Fetter in OSTP.

#### Resolved government action key to certainty – counterplan isn’t a clear choice for investors especially if doesn’t result in plan

Deutch, ‘11

[John M., Massachusetts Institute of Technology, May, “An Energy Technology Corporation Will Improve the Federal Government’s Efforts to Accelerate Energy Innovation,” http://www.brookings.edu/~/media/Research/Files/Papers/2011/5/energy%20corporation%20deutch/05\_energy\_corporation\_deutch\_paper.PDF]

IDEAL CONDITIONS FOR SUCCESSFUL TECHNOLOGY DEMONSTRATION PROGRAMS There also are important conditions for realizing a successful technology demonstration program from a selected set of projects. I list the conditions that are desirable for a successful program and compare some of these conditions with the conditions that have existed in DOE’s past demonstration efforts. 1. A stable government energy policy—for example, a known greenhouse gas emissions charge—is needed. In the absence of stable policy, a demonstration program must be pursued either on the basis of existing policy or in anticipation of changed policy. In the latter case, the demonstration project is not commercially viable so government assistance is required. A national energy plan that sets a comprehensive framework also would be welcome. Certainty about tax provisions, subsidies, and regulation guide private investment decisions, and signal which technical advances will have and which will not have value in the future. The best example is the effect that the absence of a carbon emissions charge has on investment and technology development in low-carbon electricity generation: nuclear, solar, and coal with carbon capture and sequestration. Absent a carbon charge, there is little incentive for the private sector to make such investments. It might still be sensible for the DOE to finance a technology demonstration that is “out of the money” on a commercial basis, in the absence of a carbon policy, while providing information and realistic options to the private sector if and when the policy changes. 2. Clarity about the purpose of energy policy is also important. It is easy to have a single goal and complicated to have multiple goals, especially when the combination is intended to overwhelm any doubt about the virtue of the policy. Current energy policy seeks to advance several objectives: to encourage the transition from fossil to renewable energy sources, to reduce oil imports, to reduce carbon emissions, to create jobs, to improve U.S. international competitiveness for green technologies, and to lower the costs of energy for the consumer. Alternative policy goals will involve trade-offs. For example, a carbon charge will reduce emissions but also lift the cost of electricity for the consumer. Sound public policy requires clarity about the balance struck among the trade-offs resulting from different policy choices. Sound public policy also requires a comprehensive multiyear plan that describes how the interrelated energy policies will influence different energy sectors of the economy: transportation, power, industry/commercial, and residential. Such a plan will help guide private sector deployment and technology development investment decisions. Absent a stable plan, how should a utility decide whether to build a low-cost but high-carbon-emitting pulverized coal plant for electricity generation or a high-cost but largely carbon-free nuclear power plant? A disciplined and documented procedure is needed to select the portfolio of technology demonstration projects that are intended to provide options for private sector investment. There should be explicit criteria for selecting the projects—for example, prospects for reducing emissions, reducing oil imports, stimulating renewables, creating jobs, and improving competitiveness. To reiterate, a single objective—for example, reducing emissions—is simplest, but multiple objectives are the rule and require explicit weighting in the selection process. I believe the important criteria should be reducing external environmental cost, improving energy security, and lowering the cost of energy for the U.S. consumer. Job creation and competitiveness are broader economic objectives that are not unique to the energy sector.

#### Delay

PCAST, ‘10

[President’s Council of Advisors on Science and Technology, 11-10, “REPORT TO THE PRESIDENT ON

ACCELERATING THE PACE OF CHANGE IN ENERGY TECHNOLOGIES THROUGH AN INTEGRATED FEDERAL ENERGY POLICY,” http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-energy-tech-report.pdf]

Our most important recommendation is that the Administration establish a new process that can forge a more coordinated and robust Federal energy policy, a major piece of which is advancing energy innovation. Many Executive Branch agencies and departments must be engaged, with leadership from the Executive Office of the President. This is needed because “energy policy” is an amalgam, and often derivative, of policies for environment, competitiveness, security, finance, land use, and more. The President should establish a Quadrennial Energy Review (QER) process that will provide a multiyear roadmap that lays out an integrated view of short-, intermediate-, and long-term energy objectives; outlines legislative proposals to Congress; puts forward anticipated Executive actions coordinated across multiple agencies; and identifies resource requirements for the development and implementation of energy technologies. The Secretary of Energy should provide the Executive Secretariat for the QER. While the QER will be a product of the Administration, substantial input from the Congress, the energy industry, academia, NGOs, and the public at large will be essential to the process. A staged process should be implemented now so as to provide some elements of a QER during each of the next four years. We recommend that the Secretary of Energy prepare and implement a DOE-Quadrennial Energy Review, focused on energy technology innovation, as a component of the full interagency QER on a shorter timescale. The DOE-QER should include roadmaps for key energy technologies, an integrated plan for the involvement of the national laboratories in energy programs, portfolio assessments that lay out the optimal deployment of resources, identification, and projections of demonstration projects, and identification of funding needs for each technology. This QER will also be prepared with strong input from many sources inside and outside of the Administration including industry, business, state and local governments, non-governmental organizations, and consumers. A complete and integrated QER will take longer to mature. While a good start should be made in 2011, the full government-wide QER should be targeted for delivery in early 2015. PCAST encourages Congress to use the QER as a basis for a 4-year authorization process that guides annual appropriations. The Federal investment in energy research, development, demonstration, and deployment (RDD&D) is incommensurate with the objective of leadership in energy technology innovation. We recommend a substantial increase – to $16 billion per year – in Federal support for energy RDD&D. Given the difficulty of increasing appropriated funds to this level and the importance of “front-loading” the required investment to jump start innovation, we recommend an alternative approach. The President should engage the private sector and Congress so as to generate about $10 billion per year of additional RDD&D funding through new revenue streams. This increase will provide the U.S. with the potential to leapfrog to development and deployment of the advanced energy technologies that will define a robust 21st century energy system.

### Elections

#### No impact – Romney will copy Obama on foreign policy

Aaron David Miller, 5-23-2012; distinguished scholar at the Woodrow Wilson International Center for Scholars; Barack O'Romney http://www.foreignpolicy.com/articles/2012/05/23/barack\_oromney

And that brings up an extraordinary fact. What has emerged in the second decade after 9/11 is a remarkable consensus among Democrats and Republicans on a core approach to the nation's foreign policy. It's certainly not a perfect alignment. But rarely since the end of the Cold War has there been this level of consensus. Indeed, while Americans may be divided, polarized and dysfunctional about issues closer to home, we are really quite united in how we see the world and what we should do about it. Ever wondered why foreign policy hasn't figured all that prominently in the 2012 election campaign? Sure, the country is focused on the economy and domestic priorities. And yes, Obama has so far avoided the kind of foreign-policy disasters that would give the Republicans easy free shots. But there's more to it than that: Romney has had a hard time identifying Obama's foreign-policy vulnerabilities because there's just not that much difference between the two. A post 9/11 consensus is emerging that has bridged the ideological divide of the Bush 43 years. And it's going to be pretty durable. Paradoxically, both George W. Bush's successes and failures helped to create this new consensus. His tough and largely successful approach to counterterrorism -- specifically, keeping the homeland safe and keeping al Qaeda and its affiliates at bay through use of special forces, drone attacks, aggressive use of intelligence, and more effective cooperation among agencies now forms a virtually unassailable bipartisan consensus. As shown through his stepped-up drone campaign, Barack Obama has become George W. Bush on steroids. And Bush 43's failed policies -- a discretionary war in Iraq and a mismanaged one in Afghanistan -- have had an equally profound effect. These adventures created a counter-reaction against ill-advised military campaigns that is now bipartisan theology as well. To be sure, there are some differences between Romney and Obama. But with the exception of Republicans taking a softer line on Israel and a tougher one on Russia -- both stances that are unlikely to matter much in terms of actual policy implementation -- there's a much greater convergence.

#### Relations resilient and no war

**Yuan 10**—associate professor at the Center for International Security Studies, the University of Sydney (Jingdong, 23 December 2010, “A rocky road for US and China,” <http://www.atimes.com/atimes/China/LL23Ad01.html>, RBatra)

2010 also witnessed bilateral efforts to address some of the tensions and problems. As officials from both countries recognize, it is important to promote cooperation where Beijing and Washington clearly have shared interests, and manage disputes where they have major differences. At the end of the day, Beijing and Washington realize that a stable relationship is critical to both of their national interests.

The **channels of communication remain open**. Presidents Obama and Hu met at the Nuclear Security Summit, the G-20 summit, and the APEC meeting. They also exchanged telephone calls on a number of occasions. These exchanges have proved useful in getting bilateral ties back on track, or at least to reverse trends toward further deterioration. At the same time, there have been frequent visits by US and Chinese officials that provided the opportunities to exchange views, iron out differences, and seek solutions to some of the problems.

The second S&ED held in Beijing in May resulted in over two-dozen agreements on energy, environment and science and technology. China, after extended consultation with the US, agreed to a new round of sanctions against Iran on its nuclear activities. And after over nine months of suspension, US-China military dialogues were also resumed, with the two-day bilateral Military Maritime Consultative Agreement (MMCA) meeting in Honolulu in October, and the 11th annual Defense Consultative Talks in Washington in December. Chinese Defense Minister General Liang Guanglie met with Secretary Gates in October at a regional meeting of defense chiefs and Gates will visit China in January 2011.

The pendulum swings in US-China relations in 2010 are illustrative of a relationship between a superpower that finds itself increasingly constrained and overstretched, and one that is ascending and more confident. However, unlike the Cold War confrontation between the United States and the Soviet Union where economic interactions were minimal, Sino-US economic ties are extensive and deeply entrenched.

After the European Union, the United States is China's second-largest trading partner, with total trade of $371 billion in the first 10 months of 2010. Despite differences over trade imbalances, currency and intellectual property rights, the Chinese market has become the fastest growing destination for US exports in recent years. China continues to finance US debts with purchases of US Treasury Bonds, with $883 billion as of August 2010. Meanwhile, the US market remains the principal destination for Chinese exports.

Both also recognize that they have to work together in order to address and solve global and regional problems that affect their national interests. These range from climate change, the environment and WMD proliferation to pandemics and maritime piracy.

#### Romney is all talk- won’t actually crack down on China

NYT 12 (New York Times, John Hardwood, writer, “The Electoral Math of Romney’s Stance on Trade With China”, 3/22, http://www.nytimes.com/2012/03/23/us/politics/mitt-romneys-stance-on-china-trade.html?\_r=1&pagewanted=all)

WASHINGTON — Among all the elements of Mitt Romney’s 59-point economic plan, his vow to crack down on China’s trade policy would seem the most out of place. That is not because his promise to label China a “currency manipulator” and impose tariff penalties is unique. Plenty of politicians in both parties talk tough about Beijing. What is unusual is that Mr. Romney, a former financial executive identified with Republicans’ free-trade, pro-business wing, has promised to go further than Presidents Obama or George W. Bush in confronting China. Some other business-friendly Republicans warn that his approach could set off a counterproductive trade war that would damage the United States economy. The political question is whether Mr. Romney’s stance can attract enough votes to give him the chance to put it into effect. That question echoes through Republican primaries, in which he has struggled to connect with working-class conservatives, and a possible general election against Mr. Obama. Republican and Democratic strategists alike say that confronting China can play effectively to an anxious public’s sense of economic grievance. The Obama administration has recently lodged a complaint with the World Trade Organization against China’s handling of crucial rare earth mineral exports, and imposed tariffs on Chinese solar panels to counter what it considers unfair subsidies by Beijing. “With blue-collar voters specifically, there’s a perception that we have an economic adversary in China that doesn’t play by the rules,” said Geoff Garin, a Democratic pollster. And the concern “cuts across socioeconomic lines,” said Tony Fabrizio, a Republican pollster, who said higher-income voters fear that China’s ownership of United States government debt threatens American security. Yet prominent figures who generally share Mr. Romney’s economic outlook have criticized his stance, which the Wall Street Journal editorial page called “Romney’s China Blunder.” Business leaders, while pressing for China to open its markets and protect intellectual property, caution that labeling China a currency manipulator could backfire, harming those efforts. Jon M. Huntsman Jr., who was ambassador to China before embarking on his failed bid for the Republican presidential nomination, accused Mr. Romney of “total pandering” on the issue before exiting the race and endorsing him. Rick Santorum, now competing with Mr. Romney for blue-collar votes, has taken a similar view. “We all know Mitt Romney will do and say anything to get votes,” said Hogan Gidley, Mr. Santorum’s communications director. Mr. Obama’s advisers called Mr. Romney’s stance hypocritical. A Romney family blind trust owns a stake in an investment fund established by his former company, Bain Capital, that has bought a Chinese video surveillance company. And in his 2010 book, “No Apology,” Mr. Romney criticized Mr. Obama for levying a trade complaint against Chinese tire exports. Accusing Mr. Obama of acting to reward union supporters, he wrote, “Protectionism stifles productivity.” Mr. Romney’s China currency stance “is about as authentic as his brief flirtation with cheesy grits,” said David Axelrod, Mr. Obama’s top political strategist. “When you build a career around outsourcing, slashing jobs and wages, and profiting handsomely off of bankrupting companies, I don’t think people are going to be moved by what is an obvious election-year conversion.” One Romney adviser, Vin Weber, initially wondered whether the position reflected political calculation. When he joined internal discussions about Mr. Romney’s forthcoming economic plan last year, Mr. Weber said he sought to persuade other economic advisers to abandon the promised currency crackdown, which he still considers a policy mistake. Soon Mr. Weber was making that case directly to the candidate — who rejected the appeal and insisted his policy is the right one. “This is directly from him,” said Mr. Weber, a Washington lobbyist and former Republican congressman from Minnesota. “He believes it will strengthen his hand substantially. Mitt Romney is a person who sees himself as a successful negotiator.” Underpinning Mr. Romney’s argument is his assertion that recent presidents of both parties have been “played like a fiddle” by Chinese leaders. By keeping the yuan’s value lower against the dollar than market forces would dictate, Beijing makes exports to the United States cheaper and imports from the United States more expensive. In a Republican debate last year, Mr. Romney said China’s interest in smooth relations with a mammoth customer like the United States would preclude his actions from backfiring. “You think they want to have a trade war?” Mr. Romney said. “If you are not willing to stand up to China, you will get run over by China, and that’s what’s happened for 20 years.” That assertion grates on veterans of the Bush administration, which in 2006 began a “strategic economic dialogue” with China led by Treasury Secretary Henry M. Paulson Jr., a former chairman of Goldman Sachs. The Obama administration has extended that dialogue, pressing Beijing to raise the value of the yuan while stopping short of declaring China a currency manipulator. “Both the Bush and Obama administrations have been as aggressive as possible while protecting the American people,” said Neel T. Kashkari, a Bush administration Treasury official now at Pimco, the giant bond-trading firm. “Launching a trade war with China would hurt us as much as it would hurt them.” Mr. Romney’s economic plan makes it sounds as if he is willing to take that risk. It lists the currency crackdown among five executive orders he pledges to issue on “Day 1” of his presidency. But a close reading of the language suggests he has left himself an out. It pledges to label China a currency manipulator “if China does not quickly move to float its currency.” China has already been raising the value of its currency against the dollar somewhat in recent years, including by 4.7 percent in 2011. Some experts on China policy predict a President Romney would find a way to sidestep his pledge once electioneering gave way to governance. “It is a campaign, after all,” said Nicholas R. Lardy, a fellow at the Peterson Institute for International Economics. “My forecast is that if Romney becomes president there will be little or no change in our China policy.”

#### Romney’s momentum is increasing – he’s winning most swing states

**Muja, 10/5/12 -** President and CEO of Albanian Minerals (Sahit, The Examiner, “Romney has huge gains in polls against Obama after the debate,”

<http://www.examiner.com/article/romney-has-a-huge-gain-polls-against-obama-after-the-debate>

Sahit Muja: A new Reuters/Ipsos poll released on Friday has more bad news for Obama, one in five voters said the Democrat's performance in the contest in Denver on Wednesday made them feel more negative about President Obama and almost a third said they felt more positive about his Republican challenger.¶ "Romney did well, he was perceived as doing well, and we're seeing the effect of that today," said Ipsos managing director Cliff Young. "Definitely in the short-term now, he's picking up people because of his performance in the debate."¶ The online tracking poll conducted between Monday and Friday showed 46 percent of likely voters backed Obama, versus 44 percent for Romney.¶ Obama had led Romney by 6 percentage points in the poll released on Wednesday and the edge narrowed to five points - a 48-43 percent lead for Obama - in polling up to Thursday.¶ A CNN/ORC International poll of people who watched the debate showed 67% thought Romney won, compared to 25% for Obama.¶ CBS News poll, uncommitted voters agreed 2 to 1 that Mitt Romney beat President Obama in the first presidential debate¶ The poll conducted by McLaughlin & Associates has a national sample of 1000 likely voters and an over-sample of 300 likely Coloradan voters. In Colorado, Romney leads with 50%, while Obama earns 46%.¶ Mitt Romney leads in seven of the 11 swing states. The QStarNews poll surveyed likely voters from Colorado, Florida, Iowa, Michigan, Nevada, New Hampshire, North Carolina, Ohio, Pennsylvania, Virginia and Wisconsin. The poll included 2737 likely voters from those 11 states and had a margin of error of 1.87 percent.¶ The critical battleground state of Ohio remains a draw, with President Obama holding a one-point lead in the first post-debate survey of the contest there.¶ The latest Rasmussen Reports telephone survey of Likely Ohio Voters, taken last night, finds Obama with 50% support to Mitt Romney’s 49%.¶ The latest Rasmussen Reports telephone survey of Likely Virginia Voters, taken last night, shows Romney earning 49% support to Obama’s 48%

#### even if voters hate Obama’s energy policy they won’t shift to Romney

Lewis, 10/1/12 - senior contributor to The Daily Caller (Matt, The Daily Caller, “Mitt Romney’s struggle to win blue collar Ohio voters”

This sounds trivial, but it matters greatly — especially in places like Ohio.

The Atlantic’s Molly Ball is consistently a “must read,” and her latest column reinforces a point I’ve been making for a long time — that Mitt Romney is in danger of under-performing with working-class whites in key states like the Buckeye state. (Ball’s teaser says it all: “In Appalachian coal country, Romney is now viewed with nearly as much suspicion as Obama — and that may be the story of the 2012 election.”)

There is at least one substantive reason for these voters to be skeptical of Romney. While interviewing Ohio voters, Ball stumbled over an interesting blast from the past:

It turns out Romney, as governor of Massachusetts in 2003, held a press conference in front of a coal-fired power plant. “I will not create jobs or hold jobs that kill people,” he said, and then, gesturing at the facility behind him: “That plant, that plant kills people.” You can see the footage in an Obama campaign ad that’s been airing heavily here. It seems to have made an impression.

The notion that Romney would be worse for coal than Obama seems absurd. Still, Obama is using the line to effectively muddy the waters. All he really needs is for voters to conclude, “they’re both bad,” and Obama can consider that a victory. Ball sums it up thusly,

I heard it over and over again from Ohioans — the idea that Romney stands for the wealthy and not for them. Obama’s depiction of his rival as an out-of-touch rich guy, which has gotten no little assistance from Romney himself, has made a deep and effective impression with these self-consciously working-class voters.

#### Too late to change the election- ideology

Helling ’12 (DAVE HELLING, McClatchy Newspapers Miami Herald 7-22-12 "Is the race for president already over?"

But **a growing number** of **political scientists and campaign consultants** - backed by the **latest polling data** - think the daily campaign back-and-forth **is having no significant effect on voters.** Most Americans have **locked in** their presidential decisions, polls released Thursday suggested, and the already small number of persuadable voters **shrinks by the hour**. Put another way: America could vote for president next week, and the outcome would probably be the same as it will be in November. "That's accurate, barring some really big, big event or change in the political environment," said Alan Abramowitz, a political science professor at Emory University in Atlanta, who has studied presidential voting patterns. Kenneth Warren, a political science professor at St. Louis University, agreed. "Most people have decided who they're going to vote for early on," he said. Recent polls show those who have decided are split almost evenly between Obama and Romney. In a CBS/New York Times poll, Romney led by 1 point. In a Fox News poll, he trailed Obama by 4 points. A National Public Radio poll found Obama leading by 2 points. A Gallup tracking poll over the same time period showed the race dead even. The average of polls puts the Obama advantage at 1.2 percent, according to Real Clear Politics, a political aggregation website. The incumbent has led Romney in that average by a one- to two-point margin since last October. Political scientists and consultants said there were several reasons for early presidential decision-making. In an Internet-cable-TV age, **voters are pounded with political messages daily, helping them make up their minds far in advance** of the election. An incumbent in the race makes at least one of the candidates a known quantity. And American **voters are deeply divided, further cementing their choices.**

#### Winners win elections- the plan is key to Obama’s momentum

Creamer, 11 – political strategist for over four decades

(Robert, he and his firm, Democracy Partners, work with many of the country’s most significant issue campaigns, one of the major architects and organizers of the successful campaign to defeat the privatization of Social Security, he has been a consultant to the campaigns to end the war in Iraq, pass health care, pass Wall Street reform, he has also worked on hundreds of electoral campaigns at the local, state and national level, "Why GOP Collapse on the Payroll Tax Could be a Turning Point Moment," Huffington Post, 12-23-11, www.huffingtonpost.com/robert-creamer/why-gop-collapse-on-the-p\_b\_1167491.html, accessed 9-1-12, mss)

2). Strength and victory are **enormous political assets.** Going into the New Year, they now belong to the President and the Democrats. One of the reasons why the debt ceiling battle inflicted political damage on President Obama is that it made him appear ineffectual - a powerful figure who had been ensnared and held hostage by the Lilliputian pettiness of hundreds of swarming Tea Party ideological zealots. In the last few months -- as he campaigned for the American Jobs Act -- he has shaken free of those bonds. Now voters have just watched James Bond or Indiana Jones escape and turn the tables on his adversary. Great stories are about a protagonist who meets and overcomes a challenge and is victorious. The capitulation of the House Tea Party Republicans is so important because it feels like the beginning of that kind of heroic narrative. Even today most Americans believe that George Bush and the big Wall Street Banks - not by President Obama -- caused the economic crisis. Swing voters have never lost their fondness for the President and don't doubt his sincerity. But they had begun to doubt his effectiveness. They have had increasing doubts that Obama was up to the challenge of leading them back to economic prosperity. The narrative set in motion by the events of the last several weeks could be a turning point in voter perception. It could well begin to convince skeptical voters that Obama is precisely the kind of leader they thought he was back in 2008 - a guy with the ability to lead them out of adversity - a leader with the strength, patience, skill, will and resoluteness to lead them to victory. That now contrasts with the sheer political incompetence of the House Republican Leadership that allowed themselves to be cornered and now find themselves in political disarray. And it certainly contrasts with the political circus we have been watching in the Republican Presidential primary campaign. 3). This victory will inspire the dispirited Democratic base. Inspiration is the feeling of empowerment - the feeling that you are part of something larger than yourself and can personally play a significant role in achieving that goal. It comes from feeling that together you can overcome challenges and win. Nothing will do more to inspire committed Democrats than the sight of their leader -- President Obama - out maneuvering the House Republicans and forcing them into complete capitulation. The events of the last several weeks will send a jolt of electricity through the Progressive community. The right is counting on Progressives to be demoralized and dispirited in the coming election. The President's victory on the payroll tax and unemployment will make it ever more likely that they will be wrong. 4). When you have them on the run, that's the time to chase them. The most important thing about the outcome of the battle over the payroll tax and unemployment is that it shifts the political momentum at a critical time. Momentum is an independent variable in any competitive activity - including politics. In a football or basketball game you can feel the momentum shift. The tide of battle is all about momentum. The same is true in politics. And in politics it is even more important because the "spectators" are also the players - the voters. **People** follow - and **vote -- for winners**. The bandwagon effect is enormously important in political decision-making. Human beings like to travel in packs. They like to be at the center of the mainstream. Momentum shifts affect their perceptions of the mainstream. For the last two years, the right wing has been on the offensive. Its Tea Party shock troops took the battle to Democratic Members of Congress. In the Mid-Terms Democrats were routed in district after district. Now the tide has turned. And when the tide turns -when you have them on the run - that's the time to chase them.

#### The plan creates jobs in key swing states like Ohio and Pennsylvania -- boosts reelection probability.

Korte, 4-27-12

[Gregory, USA Today, “Politics stands in the way of nuclear plant's future,” http://www.usatoday.com/money/industries/energy/story/2012-04-13/usec-centrifuges-loan-guarantees/54560118/1]

The stakes are high: It's an election year, and Ohio is a swing state. USEC estimates the project at its peak will generate 3,158 jobs in Ohio, and 4,284 elsewhere. Pike County, home to the centrifuges, has a 13% unemployment rate — the highest in Ohio. The median household income is about $40,000. The average job at USEC pays $77,316. Centrifuge parts are stacked up in Piketon. "It's as shovel-ready as they come," says spokeswoman Angela Duduit. Indeed, the project has enjoyed bipartisan support. A USA TODAY review of DOE records shows that no fewer than 46 members of Congress — 32 Republicans and 14 Democrats — have pressured the Obama administration to approve the loan guarantee for USEC. "Quick action is paramount," said one bipartisan letter. "It is imperative that this application move forward now," said another. The congressional support comes from states such as Ohio, Pennsylvania, Tennessee, Kentucky, West Virginia, Missouri, Alabama, Indiana, Maryland, North Carolina and South Carolina— an almost exact overlay of the states that would benefit from the 7,442 jobs the company says would be created.

#### Ohio key

Sowinski 12 [Greg Sowinski, Lima News, “Senator tells Husky workers he’s got their backs”, Aug 15, 2012]

Brown said Ohio is key for President Barack Obama’s re-election.¶ “Ohio is still the most important state in this election,” he said.¶ But the biggest issue is the economy, he said.¶ “The economy always is,” he said. “We’re going in the right direction but we need to do better.”¶ Brown said the state has reduced unemployment from 10.5 percent to less than 7.5 percent under Obama, and the country has added 500,000 manufacturing jobs after losing 5 million of those jobs.

### Natural Gas

#### Massive nuclear incentives just passed – non-unique’s perception link

**Yurman ’12** (Nuclear energy R&D budgets spared major cuts Posted on January 5, 2012 by dyurman| 3 Comments Congress trims funding while adding new priorities By Dan Yurman Dan Yurman, nuclear blogger Dan Yurman publishes Idaho Samizdat, a blog about nuclear energy, and is a frequent contributor to ANS Nuclear Cafe.

A Congress that has public approval ratings in the single digits because of deficit-related gridlock managed to get some of the federal budget out the door for 2012. The Energy & Water Appropriation Bill, **which covers funding** for the U.S. Department of Energy, contains $768 million for nuclear energy programs. Nuclear energy at the DOE fared better than some other high profile DOE programs. The Obama administration’s poster child for a green economy—Energy Efficiency & Renewable Energy—suffered a cut of $1.9 billion, reducing the funding request by the White House by more than half. The DOE’s Science programs also saw a significant reduction of $616 million from the President’s budget. And, nationwide environmental cleanup of DOE sites suffered a reduction of $469 million. Emphasis on small modular reactors Of the $768 million in the bill for the nuclear energy program at the DOE, $439 million is allocated to nuclear energy research and development. A key element of the appropriation is a $67 million line item for licensing technical support for light water reactors. It provides funds for first-of-a-kind engineering support for two reactor designs and sites. Supporters of fast reactor SMR designs had hoped for appropriation language that would have advanced their cause, but it didn’t appear in the committee report related to licensing activities. Within a line item of $136 million for reactor concepts, $29 million is provided for advanced R&D on SMR concepts that presumably would include some fast reactor work scope.

#### Exports won’t be profitable for decades

**State-Journal 12** [Study: Natural gas exports likely unprofitable for decades, Sep 15, 2012, West Virginia State-Journal]

While discussion of exporting liquefied natural gas has focused on the effect on domestic prices, a new study finds that international prices will be the limiting factor.¶ In fact, not much U.S. gas is likely to find a market overseas through at least 2040, according to "U.S. LNG Exports: Truth and Consequence," published Aug. 10 by the James Baker Institute for Public Policy at Rice University in Houston, Texas.¶ Baker Institute economist and report author Kenneth B. Madlock cites several reasons.¶ First, the current price differential — around $3 per million British thermal units in the U.S., with imports to Japan at around $17 — is transitory, Madlock wrote.¶ Prices are so low in the U.S. now because a mild winter coincided with a surge in production. And they're so high in Japan only while suppliers adjust to that country's sudden shift from nuclear power to natural gas following the March 2011 tsunami that knocked out the Fukushima nuclear plant.¶ In addition, the amount of export capacity proposed in the U.S. would have a significant effect on global prices.¶ "LNG trade in 2011 totaled 32 (billion cubic feet per day, or bcfd)," Madlock wrote.¶ "Currently, in the U.S. alone there is over 17 bcfd of export capacity in various stages of proposal and development," he continued. "If even one-third of this capacity is built and placed into operation, it will dramatically alter the ability to supply the Asian market with natural gas."¶ Indeed, even without being exported, U.S. shale gas has been reducing prices in Europe and Asia by displacing gas that could have been imported here.¶ "LNG supplies whose development was anchored to the belief that the United States would be a premium market have been diverted to European and Asian buyers," Madlock wrote. ¶ That downward price pressure is changing the pricing paradigm, he wrote -- from the long-time practice of indexing contracts to the price of oil to indexing them instead to the lower spot price.¶ Finally, Madlock sees plenty of conventional and unconventional gas supplies available for development globally.¶ "The apparent profitable export option from the U.S. market based on current market conditions is transitory, as current market conditions beget a supply response abroad that erodes current price differentials," he concludes.¶

#### Bans won’t pass – GOP controlled house

**Upstream 12** [Upstream: the International Oil And Gas News Source, “House bills would ban gas exports”, 14 February 2012]

The US should stop exports of natural gas to prevent domestic prices from rising, Democratic Congressman Edward Markey said on Tuesday while introducing two bills in the House of Representatives to prevent shipments.¶ The bills, which would face an uphill battle in the Republican-controlled House, come as US regulators consider applications for exports of a glut of natural gas that has weighed down prices and caused some companies to step back from drilling.¶ One of the bills from Markey, an outspoken critic of the oil and gas industry, would prevent the Federal Energy Regulatory Commission from approving any natural gas export terminals until 2025, Reuters reported.¶ The other bill would prevent exports of natural gas drilled on federal lands, and would ban pipelines crossing federal lands from carrying natural gas destined for export, according to the news wire. It was co-sponsored by Rush Holt, a Democratic congressman from New Jersey.

#### Collapse of natural gas industry inevitable- Overleveraged, prices too low

**Fahey 2012** (Jonathan Fahey, April 9, 2012, “Natural gas glut means drilling boom must slow,” Boston Globe, lexis)

The U.S. natural gas market is bursting at the seams. So much natural gas is being produced that soon there may be nowhere left to put the country's swelling surplus. After years of explosive growth, natural gas producers are retrenching. The underground salt caverns, depleted oil fields and aquifers that store natural gas are rapidly filling up after a balmy winter depressed demand for home heating. The glut has benefited businesses and homeowners that use natural gas. But with natural gas prices at a 10-year low — and falling — companies that produce the fuel are becoming victims of their drilling successes. Their stock prices are falling in anticipation of declining profits and scaled-back growth plans. Some of the nation's biggest natural gas producers, including Chesapeake Energy, ConocoPhillips and Encana Corp., have announced plans to slow down. "They've gotten way ahead of themselves, and winter got way ahead of them too," says Jen Snyder, head of North American gas for the research firm Wood Mackenzie. "There hasn't been enough demand to use up all the supply being pushed into the market." So far, efforts to limit production have barely made a dent. Unless the pace of production declines sharply or demand picks up significantly this summer, analysts say the nation's storage facilities could reach their limits by fall. That would cause the price of natural gas, which has been halved over the past year, to nosedive. Citigroup commodities analyst Anthony Yuen says the price of natural gas — now $2.08 per 1,000 cubic feet — could briefly fall below $1. "There would be no floor," he says. Since October, the number of drilling rigs exploring for natural gas has fallen by 30 percent to 658, according to the energy services company Baker Hughes. Some of the sharpest drop-offs have been in the Haynesville Shale in Northwestern Louisiana and East Texas and the Fayetteville Shale in Central Arkansas. But natural gas production is still growing, the result of a five-year drilling boom that has peppered the country with wells. The workers and rigs aren't just being sent home. They are instead being put to work drilling for oil, whose price has averaged more than $100 a barrel for months. The oil rig count in the U.S is at a 25-year high. This activity is adding to the natural gas glut because natural gas is almost always a byproduct of oil drilling. Analysts say that before long companies could have to start slowing the gas flow from existing wells or even take the rare and expensive step of capping off some wells completely. "Something is going to have to give," says Maria Sanchez, manager of energy analysis at Bentek Energy, a research firm. U.S. natural gas production has boomed in recent years as a result of new drilling techniques that allow companies to unlock fuel trapped in shale formations. Last year, the U.S. produced an average of 63 billion cubic feet of natural gas per day, a 24 percent increase from 2006. But over that period consumption has grown half as fast. The nation's storage facilities could easily handle this extra supply until recently because cold winters pushed up demand for heating and hot summers led to higher demand for air conditioning. Just over half the nation's homes are heated with natural gas, and one-quarter of its electricity is produced by gas-fired power plants. But this past winter was the fourth warmest in the last 117 years, according to the National Oceanic and Atmospheric Administration. It was the warmest March since 1950. Between November and March, daily natural gas demand fell 5 percent, on average, from a year earlier, according to Bentek Energy. Yet production grew 8 percent over the same period. "We haven't ever seen a situation like this before," says Chris McGill, Vice President for Policy Analysis at the American Gas Association, an industry group. At the end of winter, there is usually about 1.5 trillion cubic feet of gas in storage. Today there is 2.5 trillion cubic feet because utilities withdrew far less than usual this past winter. There is 4.4 trillion cubic feet of natural gas storage capacity in the U.S. If full, that would be enough fuel to supply the country for about 2 months. If current production and consumption trends were to continue, Bentek estimates that storage facilities would be full on October 10. Storage capacity, which has grown by 15 percent over the past decade, cannot be built fast enough to address the rapidly expanding glut. And analysts note there is little financial incentive to build more anyway.

#### No link—LNG in the U.S. is inevitable and the link is linear at best

**Weeks, 5** (Jennifer, E: The Environmental Magazine, “Highly combustible: debating the risks and benefits of LNG,” Nov-Dec 2005, http://findarticles.com/p/articles/mi\_m1594/is\_6\_16/ai\_n15947809)

"Given the enormity of our energy needs, a segment of our supply has to come from LNG," says former U.S. Representative Philip Sharp, who served as Congressional chair of the National Commission on Energy Policy and is now president of Resources for the Future, an environmental think tank in Washington, D.C. "There's no way that cleaner sources add up to what we need, and gas is much cleaner than coal or oil. LNG should not become an excuse for failing to press forward on energy efficiency and renewable fuels, but we have to deal within the confines of our political and economic institutions, and changes in the energy system are incremental," says Sharp.

#### Russian econ is resilient – budget flexibility, reserve funds, and falling ruble check total collapse

Jason Bush 7-2-2012; Reuters columnist, Oil-price slide highlights risks to Putin's Russia http://articles.economictimes.indiatimes.com/2012-07-02/news/32508636\_1\_oil-price-largest-oil-producer-peter-westin

Analysts say the impact on Russia of lower oil prices may be milder than during previous falls. "In the short term, in the next one to three years, we are fine," said Tchakarov. He noted that according to Finance Ministry calculations, every one dollar fall in the oil price means that the government loses around 55 billion roubles ($1.7 billion) in oil-related taxes over the course of a year. With the budget presently balancing at around $115 per barrel, an oil price of $90 per barrel, if sustained over a full year, would leave the government short to the tune of around $40 billion a year. But that is still just a fraction of the $185 billion that Russia has stashed away in two fiscal reserve funds, designed to stabilise the budget in just such an emergency. Even at $60 per barrel - the average oil price during the crisis year of 2009 - the reserve funds could cover the shortfall for about two years. "I find this worrying about the budget at this moment a little beside the point," said Clemens Grafe, chief Russia economist at Goldman Sachs. "The fiscal buffers they have to absorb this are going to be sufficient without cutting expenditure." Analysts also point out that since the previous financial crisis in 2008-2009, the central bank has radically changed the exchange rate regime, allowing the rouble to fall in line with the cheaper oil price. Since oil began its latest slide in mid-March, the rouble has lost around 15 percent of its value against the dollar. "The rouble weakened exactly in line with the oil price. And a weaker rouble is very good because it will secure the rouble equivalent of oil taxes for the budget," said Evgeny Gavrilenkov, chief economist at Troika Dialog.

#### Econ decline won’t change Russia’s foreign policy or cause domestic unrest

Robert Blackwill 2009; former associate dean of the Kennedy School of Government and Deputy Assistant to the President and Deputy National Security Advisor for Strategic Planning; RAND, “The Geopolitical Consequences of the World Economic Recession—A Caution”, http://www.rand.org/pubs/occasional\_papers/2009/RAND\_OP275.pdf

Now on to Russia. Again, five years from today. Did the global recession and Russia’s present serious economic problems substantially modify Russian foreign policy? No. (President Obama is beginning his early July visit to Moscow as this paper goes to press; nothing fundamental will result from that visit). Did it produce a serious weakening of Vladimir Putin’s power and authority in Russia? No, as recent polls in Russia make clear. Did it reduce Russian worries and capacities to oppose NATO enlargement and defense measures eastward? No. Did it affect Russia’s willingness to accept much tougher sanctions against Iran? No. Russian Foreign Minister Lavrov has said there is no evidence that Iran intends to make a nuclear weapon.25 In sum, Russian foreign policy is today on a steady, consistent path that can be characterized as follows: to resurrect Russia’s standing as a great power; to reestablish Russian primary influence over the space of the former Soviet Union; to resist Western eff orts to encroach on the space of the former Soviet Union; to revive Russia’s military might and power projection; to extend the reach of Russian diplomacy in Europe, Asia, and beyond; and to oppose American global primacy. For Moscow, these foreign policy first principles are here to stay, as they have existed in Russia for centuries. 26 None of these enduring objectives of Russian foreign policy are likely to be changed in any serious way by the economic crisis.

### Russian HEU Add-on

#### US leadership in reprocessing supercharges conversion of HEU

**Timbers 3** William Timbers president and CEO of the USEC, explains in 2k3: Timbers, President and Chief Executive Officer USEC Inc, 9-19-2k3

(William, "Nuclear Power & Global Security: Mutual Interest, Mutual Opportunities, Delivered at the Carnegie Endowment for International

Peace Second International Non-Proliferation Conference Moscow, Russia. P. <http://www.usec.com/v2001_02/Content/News/Speeches/09-19-03-CEIPMoscowRe>marks.pdf )

While significant steps have been taken by Russia and the United States to strengthen the security of stored fissionable nuclear materials, a different approach goes right to the heart of the matter—the very elimination of nuclear warhead materials.

After several years of consultations, in 1993 Russia and the United States formally agreed to a 20-year, $12 billion program to eliminate 500 metric tons of highly enriched uranium (HEU) taken from dismantled Russian warheads. To put this in perspective, 500 metric tons of HEU is the equivalent of more than 20,000 nuclear warheads. This U.S.-Russian agreement is often referred to it as the “HEU-LEU” agreement or “the Russian HEU Agreement.” We, who are responsible for commercially implementing this agreement, call it the “Megatons to Megawatts” program. I want to take a moment to acknowledge that, over the years, many of you—both Russians and Americans—have played a vital role in making this HEU to LEU program possible and in helping to ensure its continuity. You can be justifiably proud of your role in making this remarkable effort a success. For those of you who are not familiar with Megatons to Megawatts, you may be wondering why a private sector company is involved. That is because the 1993 U.S.-Russian Agreement requires that it be implemented strictly on commercial terms. Simply put, the strategy of the two governments was to ensure that a substantial amount of excess weapons material was irreversibly converted to peaceful uses as quickly as possible and to utilize the dynamics of the commercial market for nuclear fuel to pay for this effort. Their accurate assessment was that the program could commercially sustain itself over the 20-year period through the sale and purchase of fuel derived from warhead materials. Accordingly, in 1994 executive agents appointed by both governments signed a commercial implementing contract—Techsnabexport (TENEX) acting for the Russian government and the United States Enrichment Corporation (USEC) acting for the United States government. The value of this program also extends beyond its basic mission of eliminating nuclear warhead materials. There is also a human dimension. Proceeds from this program support thousands of Russian workers who take part in the process of transforming HEU into reactor fuel, who work on environmental cleanup and restoration and who enhance the safeguards for these materials. This underscores the importance of addressing issues concerning highly talented people who were previously involved in weapons programs. The talents of these dedicated scientists and engineers, representing a broad range of technical capabilities, can and should be utilized for non-weapons related work. Companies such as USEC stand ready to work with their Russian partners to facilitate and accelerate such endeavors. 2 When you consider the achievements of the Nunn-Lugar and Megatons to Megawatts programs and the human resources implications, it is clear that they have made a definite contribution to reducing the threat of nuclear weapons. But, what about the future? I believe that we can substantially increase the amount of nuclear warhead material that is eliminated by burning it as fuel in a new generation of commercial nuclear power stations. Regardless of where this bomb-grade material may come from, **its conversion into fuel will end its military value.** And last, but not least, the private sector can play a financial and facilitating role in making this happen. Today, the nuclear fuel market is in balance—supply is matching demand. A rapid increase in the number of nuclear power plants would increase the demand for nuclear fuel. While we would meet long-term demand primarily with expanded enrichment capacity, this new demand would also enable accommodation of additional fuel derived from nuclear warhead material. The good news is that we are at an intersection of mutual interests. It is increasingly evident that a global expansion of commercial nuclear power operations is being actively considered—especially in Russia, Asia and the United States. Several events are driving this trend. Events, such as increasing worldwide demand for electricity, power shortages, and global climate change, air pollution and growing dependency upon long, fragile lifelines of energy resources, are increasing the appeal of nuclear power. These factors present us with a unique opportunity. I believe there is a mutual interest among those who advocate the expansion of commercial nuclear power plants and those who seek to eliminate nuclear weapons materials. Advocates of nuclear nonproliferation can accelerate the increased elimination of nuclear bomb-grade materials and secure the dynamics of the marketplace to facilitate these activities Concerns about proliferation are often raised by those opposed to the further development of nuclear power. At the same time, it is widely recognized that there are numerous technical routes to produce nuclear warhead materials and that commercial nuclear power operations, with appropriate and rigorous fuel safeguards, is not the route of choice for those intent on securing weapons materials.

# Round 3 Aff v Minnesota CE

### T – Substantial

#### Substantial means to large degree – not legal term of art

Arkush 2 (David, JD Candidate – Harvard University, “Preserving "Catalyst" Attorneys' Fees Under the Freedom of Information Act in the Wake of Buckhannon Board and Care Home v. West Virginia Department of Health and Human Resources”, Harvard Civil Rights-Civil Liberties Law Review, Winter,
37 Harv. C.R.-C.L. L. Rev. 131)

Plaintiffs should argue that the term "substantially prevail" is not a term of art because if considered a term of art, resort to Black's 7th produces a definition of "prevail" that could be interpreted adversely to plaintiffs. [99](http://www.lexis.com/research/retrieve?_m=1421887dc00d6c0b78bddb20857a69fa&docnum=16&_fmtstr=FULL&_startdoc=1&wchp=dGLbVzW-zSkAz&_md5=3f3ffe65eadff46b38ea49c40cb1037e&focBudTerms=definition%20of%20the%20term%21%20substantial%21%20or%20definition%20of%20the%20word%20substantial%21&focBudSel=all#n99) It is commonly accepted that words that are not legal terms of art should be accorded their ordinary, not their legal, meaning, [100](http://www.lexis.com/research/retrieve?_m=1421887dc00d6c0b78bddb20857a69fa&docnum=16&_fmtstr=FULL&_startdoc=1&wchp=dGLbVzW-zSkAz&_md5=3f3ffe65eadff46b38ea49c40cb1037e&focBudTerms=definition%20of%20the%20term%21%20substantial%21%20or%20definition%20of%20the%20word%20substantial%21&focBudSel=all#n100) and ordinary-usage dictionaries provide FOIA fee claimants with helpful arguments. The Supreme Court has already found favorable, temporally relevant definitions of the word "substantially" in ordinary dictionaries: "Substantially" suggests "considerable" or "specified to a large degree." See Webster's Third New International Dictionary 2280 (1976) (defining "substantially" as "in a substantial manner" and "substantial" as "considerable in amount, value, or worth" and "being that specified to a large degree or in the main"); see also 17 Oxford English Dictionary 66-67 (2d ed. 1989) ("substantial": "relating to or proceeding from the essence of a thing; essential"; "of ample or considerable amount, quantity or dimensions"). [101](http://www.lexis.com/research/retrieve?_m=1421887dc00d6c0b78bddb20857a69fa&docnum=16&_fmtstr=FULL&_startdoc=1&wchp=dGLbVzW-zSkAz&_md5=3f3ffe65eadff46b38ea49c40cb1037e&focBudTerms=definition%20of%20the%20term%21%20substantial%21%20or%20definition%20of%20the%20word%20substantial%21&focBudSel=all#n101)

### AT Tradeoff

#### The plan solves -- building new nuclear plants attracts labor.

Howard, ‘7

[Angie, Vice President -- Nuclear Energy Institute, 2-5, “Achieving Excellence in Human Performance: Nuclear Energy Training and Education”, <http://www.nei.org/newsandevents/speechesandtestimony/2007/americannuclearsocietyextended>]

Yes, we do have a looming workforce crisis. The average age of employees in the industry is 48 years—one of the oldest of any major industries in the country. Retirement and attrition will create the need to essentially re-staff the existing fleet over the next 10 years. We need to get the younger generation into the industry. But the industry is hiring, and we have employment opportunities that are attractive to talented young people, both in the craft and in the professional engineering and management fields. Research among college engineering students has shown that the prospect of building new plants is the single most important factor in attracting new talent to the nuclear energy industry. Social responsibility, creativity, learning opportunities, compensation—these are the other priorities when young people look for in a career today.

### AT: Timeframe 2AC

#### We can build them really quickly

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

How Fast Can We Build Them?¶ During France’s nuclear building boom they built an average of six nuclear power plants per year, culminating in a situation that provides them with about 80% of their electrical needs while making electricity their fourth-largest export earner. Gross Domestic Product (GDP) can be used as a rough guide to what a given country can financially bear for such a project, keeping in mind that France proceeded without the sense of urgency that the world today should certainly be ready to muster. There are six countries with higher GDPs than France, all of whom already possess the technology to build fast reactors: USA, China, Japan, India (they’re building one now), Germany, and the United Kingdom. Add Canada and Russia (which already has a commercial fast reactor running and is planning more), then tally up the GDP of these eight countries. At the rate of 6 plants per year (~ 1GW each) at the equivalent of France’s GDP, these countries alone could afford to build about 117 power plants per year, even without any greater urgency than the French brought to bear on their road to energy independence.¶ Consider that there are about 400 nuclear power plants in the world today. At this entirely feasible rate of construction we could more than double the planet’s nuclear capacity in just four years. Remember, the French accomplished their transformation with non-modular, albeit standardized, Gen II designs. Modular construction, passive safety systems, and factory fabrication, divided among companies all over the planet, could realistically convert the planet’s electricity production to virtually all nuclear in a couple decades, with abundant surplus electricity for ancillary uses such as desalination and the production of liquid fuels such as ammonia.

### Contruction

#### AT: Carbon Footprint

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

Carbon Footprint¶ It is sometimes alleged by anti-nuclear campaigners that nuclear power’s life-cycle carbon costs are so high as to render it little better than the use of coal. The IPCC has studied this and put nuclear in about the same category as wind and solar in their Fourth Assessment Report section entitled Climate Change 2007: Mitigation of Climate Change [xxii]. On page 293 of this report there is a chart that describes both non-biomass renewables and nuclear in terms of their carbon output simply as “small amount.” The text of the report (on page 269) states: “Total life-cycle GHG emissions per unit of electricity produced from nuclear power are below 40 g CO2-eq/kWh (10 g C-eq/kWh), similar to those for renewable energy sources. Nuclear power is therefore an effective GHG mitigation option…” Cynics may point out that they mention a thoroughly debunked report [xxiii] that claims much higher life-cycle emissions, but the IPCC clearly found it unpersuasive. A recent meta-review published in the journal Energy reinforced this result [xxiv].¶ It’s important to note that the vast majority of CO2 emissions in the nuclear life cycle arise from uranium mining and enrichment. Deployment of integral fast reactors, however, will eliminate the need for both mining and enrichment for nearly a millennium, so the life-cycle carbon cost will be virtually nil, especially if the concrete used in the new plants is of the magnesium silicate variety that actually is carbon negative [xxv]. While it is sometimes hard to envision a world powered by abundant nuclear energy, the fact is that the vehicles that are used in constructing a power plant can all be zero-emission, the smelting of the steel that goes into building the plant will be done with clean nuclear power, and even the cement plants can be powered by nuclear heat.

### Water

#### Experts conclude aff

**Rasmussen 11** – CEO, Monday Morning; Founder, Green Growth Leaders, founder of the Copenhagen Climate Council (Erik, 04/12, “Prepare for the Next Conflict: Water Wars,” http://www.huffingtonpost.com/erik-rasmussen/water-wars\_b\_844101.html)

For years experts have set out warnings of how the earth will be affected by the water crises, with millions dying and **increasing conflicts** over dwindling resources. They have proclaimed -- in line with the report from the US Senate -- that the water scarcity is a security issue, and that it will yield political stress with a risk of **international water wars**. This has been reflected in the oft-repeated observation that water will likely replace oil as a future cause of war between nations. Today the first glimpses of the coming water wars are emerging. Many countries in the Middle East, Africa, Central and South Asia -- e.g. Afghanistan, Pakistan, China, Kenya, Egypt, and India -- are already feeling the direct consequences of the water scarcity -- with the competition for water leading to social unrest, conflict and migration. This month the escalating concerns about the possibility of water wars triggered calls by Zafar Adeel, chair of UN-Water, for the UN to promote "hydro-diplomacy" in the Middle East and North Africa in order to avoid or at least manage emerging tensions over access to water. The gloomy outlook of our global fresh water resources points in the direction that the current conflicts and instability in these countries are **only glimpses** of the water wars expected to unfold in the future. Thus we need to address the water crisis that can **quickly escalate** and become a great humanitarian crisis and also a **global safety problem**.

#### Cooperation over water won’t happen—we control future wars

**Klare 1—**Five College Professor of Peace and World Security Studies at Hampshire College (Michael, The New Geography of Conflict, Foreign Affairs, May/June2001, Vol. 80 Issue 3, p49, EBSCO, AMiles)

The threats to water supplies are roughly similar. Because many of the important sources of water in the Middle East and Asia are shared by two or more countries, it is essential that these states reach mutually acceptable agreements for the allocation of the available supplies. Few governments have chosen to do so, however. Egypt and Sudan agreed to divide up the Nile's flow in 1959 but declined to provide any supplies for Ethiopia and the other states that depend on the river's waters --an obviously unstable arrangement. Iraq and Syria have reached agreement on their respective appropriations from the Euphrates, but the river itself arises in Turkey, which has heretofore refused to sign a water-sharing agreement. Israel has yet to reach agreement with Syria over the Jordan River's headwaters and has not carried through with promises made to Jordan in 1994 regarding cooperative water projects in the Jordan River valley. The only major water-sharing arrangement that has demonstrated any degree of durability is the Indus Waters Treaty of 1960 between India and Pakistan -- and even this pioneering agreement remains hostage to the future stability of these two countries' relations. There and elsewhere, international disputes over the allocation of existing supplies will grow more intense as populations increase and the greenhouse process accelerates global warming. STAND AND DELIVER DEVISING WAYS to peacefully resolve the increasing competition over natural resources is all the more urgent because many states continue to view controlling certain natural resources as a national security requirement -- and something worth fighting for. In the United States, for example, President Jimmy Carter declared in 1980 that any attempt by hostile powers to cut off the flow of Persian Gulf oil would "be regarded as an assault on the vital interests of the United States of America," which the United States would repel "by any means necessary, including military force." Subsequent presidents have made similar statements, and substantial U.S. forces are now permanently deployed in the Persian Gulf to enforce this policy. Other nations have been less explicit about their resource-protection policies, but there is no doubt that they hold similar views. China, for example, has declared the South China Sea part of its national maritime territory and has asserted its right to employ force to protect it. Although not mentioning China by name, Japan has warned of a threat to its vital trade routes (approximately 80 percent of Japan's oil supply comes by tanker through the South China Sea) and vowed to take appropriate protective measures. China's assertive posture has also spurred other neighboring countries, including Indonesia, Malaysia, the Philippines, Thailand, and Vietnam, to beef up their own air and naval capabilities. Water, like oil and natural gas, has prompted talk of national security. "Water for Israel is not a luxury," the nation's second prime minister, Moshe Sharett, once declared. "It is not just a desirable and helpful addition to our natural resources. Water is life itself." In a similar vein, Boutros Boutros-Ghali, when he was Egypt's minister of state for foreign affairs, dramatically claimed in 1988 that "the next war in our region will be over the waters of the Nile, not politics." Some governments have also threatened to use their control over water supplies as an instrument of coercion: in 1989, for example, then President Turgut Ozal of Turkey warned Syria that his government would cut off the flow of the Euphrates unless Syria curbed the activities of Kurdish terrorists operating from Syrian bases. The actual use of force in resolving water disputes -- the Middle East war of 1967, for example, was sparked in part by the Arab states' plan to divert the headwaters of the Jordan River around Israel to Jordan -- has been relatively rare. But the growing pressure on vital supplies, combined with the paucity of viable water-sharing agreements, will create more frequent clashes.

**Trade wars won’t escalate to real conflict, let alone protectionism**

**Ikenson, 09** associate director for the Center for Trade Policy Studies at the Cato Institute (Daniel, “A Protectionism Fling: Why Tariff Hikes and Other Trade Barriers Will Be Short-Lived,” 3/12, http://www.freetrade.org/pubs/FTBs/FTB-037.html

A Little Perspective, Please

Although some governments will dabble in some degree of protectionism, the combination of a sturdy rules-based system of trade and the economic self interest in being open to participation in the global economy will limit the risk of a protectionist pandemic. According to recent estimates from the International Food Policy Research Institute, if all WTO members were to raise all of their applied tariffs to the maximum bound rates, the average global rate of duty would double and the value of global trade would decline by 7.7 percent over five years.8 That would be a substantial decline relative to the 5.5 percent annual rate of trade growth experienced this decade.9

But, to put that 7.7 percent decline in historical perspective, the value of global trade declined by 66 percent between 1929 and 1934, a period mostly in the wake of Smoot Hawley's passage in 1930.10 So the potential downside today from what Bergsten calls "legal protectionism" is actually not that "massive," even if all WTO members raised all of their tariffs to the highest permissible rates.

If most developing countries raised their tariffs to their bound rates, there would be an adverse impact on the countries that raise barriers and on their most important trade partners. But most developing countries that have room to backslide (i.e., not China) are not major importers, and thus the impact on global trade flows would not be that significant. OECD countries and China account for the top twothirds of global import value.11 Backsliding from India, Indonesia, and Argentina (who collectively account for 2.4 percent of global imports) is not going to be the spark that ignites a global trade war. Nevertheless, governments are keenly aware of the events that transpired in the 1930s, and have made various pledges to avoid protectionist measures in combating the current economic situation.

In the United States, after President Obama publicly registered his concern that the "Buy American" provision in the American Recovery and Reinvestment Act might be perceived as protectionist or could incite a trade war, Congress agreed to revise the legislation to stipulate that the Buy American provision "be applied in a manner consistent with United States obligations under international agreements." In early February, China's vice commerce minister, Jiang Zengwei, announced that China would not include "Buy China" provisions in its own $586 billion stimulus bill.12

But even more promising than pledges to avoid trade provocations are actions taken to reduce existing trade barriers. In an effort to "reduce business operating costs, attract and retain foreign investment, raise business productivity, and provide consumers a greater variety and better quality of goods and services at competitive prices," the Mexican government initiated a plan in January to unilaterally reduce tariffs on about 70 percent of the items on its tariff schedule. Those 8,000 items, comprising 20 different industrial sectors, accounted for about half of all Mexican import value in 2007. When the final phase of the plan is implemented on January 1, 2013, the average industrial tariff rate in Mexico will have fallen from 10.4 percent to 4.3 percent.13

And Mexico is not alone. In February, the Brazilian government suspended tariffs entirely on some capital goods imports and reduced to 2 percent duties on a wide variety of machinery and other capital equipment, and on communications and information technology products.14 That decision came on the heels of late-January decision in Brazil to scrap plans for an import licensing program that would have affected 60 percent of the county's imports.15

Meanwhile, on February 27, a new free trade agreement was signed between Australia, New Zealand, and the 10 member countries of the Association of Southeast Asian Nations to reduce and ultimately eliminate tariffs on 96 percent of all goods by 2020.

While the media and members of the trade policy community fixate on how various protectionist measures around the world might foreshadow a plunge into the abyss, there is plenty of evidence that governments remain interested in removing barriers to trade. Despite the occasional temptation to indulge discredited policies, there is a growing body of institutional knowledge that when people are free to engage in commerce with one another as they choose, regardless of the nationality or location of the other parties, they can leverage that freedom to accomplish economic outcomes far more impressive than when governments attempt to limit choices through policy constraints.

**Global trade is toast**

**Miller and Markheim 2009** – Ambassador to the UN Economics and Social Council, Director of the Center for International Trade and Economics at Heritage (9/28, Terry and Daniella, Heritage Foundation, “Global Trade Liberalization Continues, But Risks Abound”, http://www.heritage.org/Research/Reports/2009/09/Global-Trade-Liberalization-Continues-But-Risks-Abound, WEA)

After more than half a century of trade liberalization, multilateral efforts at the World Trade Organization (WTO) and elsewhere have ground to a halt. So far, negotiations within the Doha Round have failed to result in a comprehensive agreement that is satisfactory to all WTO members. The collapse of negotiations in July 2008 reflects both divergent thinking on the role that trade liberalization plays in advancing economic development and intransigence among some members with respect to upholding their commitment to eliminating trade barriers. Moreover, the Doha process of multilateral trade negotiations is based on the idea that it is easier for countries to lower their tariffs and other trade barriers if others do so as well. There is some political merit to this idea. The actual negotiations, however, involve a dynamic that runs counter to the goal of freeing trade. Countries hold jealously to protectionist measures that hurt the efficiency of their own economies, offering them up only in exchange for similar "concessions" from others. The psychology of the process could not be worse, because it encourages countries to value things that hurt themselves, like tariffs, import quotas, or domestic subsidies. With trade negotiations in the WTO stalled, the continued lack of a new, comprehensive multilateral trade pact reduces countries' discipline in keeping a rein on using protectionist measures to prop up domestic companies during the current economic slump. Higher tariffs, quotas, government subsidies and cheap loans to businesses, restrictive domestic-preference requirements in government procurement, and new regulatory barriers to trade are only some of the policy mechanisms that nations are introducing in a misguided attempt to bolster their domestic economies.

### Elections

#### No impact – Romney will copy Obama on foreign policy

Aaron David Miller, 5-23-2012; distinguished scholar at the Woodrow Wilson International Center for Scholars; Barack O'Romney http://www.foreignpolicy.com/articles/2012/05/23/barack\_oromney

And that brings up an extraordinary fact. What has emerged in the second decade after 9/11 is a remarkable consensus among Democrats and Republicans on a core approach to the nation's foreign policy. It's certainly not a perfect alignment. But rarely since the end of the Cold War has there been this level of consensus. Indeed, while Americans may be divided, polarized and dysfunctional about issues closer to home, we are really quite united in how we see the world and what we should do about it. Ever wondered why foreign policy hasn't figured all that prominently in the 2012 election campaign? Sure, the country is focused on the economy and domestic priorities. And yes, Obama has so far avoided the kind of foreign-policy disasters that would give the Republicans easy free shots. But there's more to it than that: Romney has had a hard time identifying Obama's foreign-policy vulnerabilities because there's just not that much difference between the two. A post 9/11 consensus is emerging that has bridged the ideological divide of the Bush 43 years. And it's going to be pretty durable. Paradoxically, both George W. Bush's successes and failures helped to create this new consensus. His tough and largely successful approach to counterterrorism -- specifically, keeping the homeland safe and keeping al Qaeda and its affiliates at bay through use of special forces, drone attacks, aggressive use of intelligence, and more effective cooperation among agencies now forms a virtually unassailable bipartisan consensus. As shown through his stepped-up drone campaign, Barack Obama has become George W. Bush on steroids. And Bush 43's failed policies -- a discretionary war in Iraq and a mismanaged one in Afghanistan -- have had an equally profound effect. These adventures created a counter-reaction against ill-advised military campaigns that is now bipartisan theology as well. To be sure, there are some differences between Romney and Obama. But with the exception of Republicans taking a softer line on Israel and a tougher one on Russia -- both stances that are unlikely to matter much in terms of actual policy implementation -- there's a much greater convergence.

#### Romney won’t be crazy with Russia

The Economist 9/1 (9/1/12, Romney Could Screw Up US Relations With Russia, <http://www.businessinsider.com/mitt-romneys-foreign-policy-chops-come-into-light-2012-9>, RBatra)

At the same time, the potential impact of a Romney presidency should not be exaggerated. Mr Romney is not an ideological politician, and he will have solid reasons to maintain a working relationship with Russia. These include reliance on Russian transit corridors to support US forces in Afghanistan to 2015 and beyond, Russia's veto in the UN Security Council, and its potential to act as interlocutor between the US and rogue states. Finally, there is a significant element of uncertainty that stems from the lack of clarity about what Mr Romney, who has often changed his position, actually stands for. In particular, the extent of the influence on him of several competing Republican foreign policy schools (neo-conservativism, populist isolationism, realism, liberal internationalism) is unclear.

#### Putin a/c

**Weiss 6-19** – Founder and Chief Executive Officer of Weiss Asset Management, a Boston-based investment firm,[[2]](http://en.wikipedia.org/wiki/Andrew_Weiss_%28economist%29#cite_note-time-1) and Professor Emeritus [Boston University](http://en.wikipedia.org/wiki/Boston_University) (Andrew, 2012, “[Putin's Waiting Game](http://www.foreignpolicy.com/articles/2012/06/19/waiting_game)” <http://www.foreignpolicy.com/articles/2012/06/19/waiting_game?page=full>) Jacome

The most important yet overlooked aspect of the current situation, however, may be the cynicism and casual indifference that Putin has displayed toward the U.S.-Russian relationship in the face of his much bigger problems at home. At the moment, Putin appears to be preoccupied by the political mess created by his decision to [switch jobs with Medvedev](http://www.nytimes.com/2012/05/09/world/europe/slight-hiccup-as-putin-and-medvedev-switch-jobs-in-russia.html) and the [badly flawed Duma elections](http://www.bbc.co.uk/news/world-europe-16042797) last December. He also must contend with the ripple effects of the eurozone drama and global economic slowdown, which together have contributed to a [20 percent decline](http://online.wsj.com/article/SB10001424052702303734204577467893480636270.html?mod=ITP_moneyandinvesting_3) in global oil prices over the past two months alone.

Against this backdrop, the ups and downs of relations with Washington may be little more than a distraction from the more urgent challenge of restoring the aura of invulnerability and bezal'ternativnost' (the lack of any alternative) that bolstered Putin's authority during his first 12 years in power. Already, he seems to have fallen back on the tried-and-true formula of portraying himself as the protector of a Fortress Russia beset by imaginary foreign enemies and spies.  This gambit has long helped the Kremlin cultivate support from average citizens and build up the regime's legitimacy.

The chief beneficiaries of Putin's rule -- the increasingly affluent and middle-class residents of places like Moscow -- show no signs of muffling their anger about his return to the Kremlin despite an ongoing crackdown on political dissent. Still, Putin knows how to cater to the two-thirds of the Russian electorate that voted for him in March and reside primarily in Russia's smaller cities and countryside. He may find it hard to resist the temptation to play upon their worst fears and anti-Western stereotypes. **Sacrificing the past several years of dramatic improvement in the U.S.-Russian relationship may seem like a small price to pay if it breathes new life and legitimacy into his rule.**

#### Romney win now

**Muja, 10/5/12 -** President and CEO of Albanian Minerals (Sahit, The Examiner, “Romney has huge gains in polls against Obama after the debate,”

<http://www.examiner.com/article/romney-has-a-huge-gain-polls-against-obama-after-the-debate>

Sahit Muja: A new Reuters/Ipsos poll released on Friday has more bad news for Obama, one in five voters said the Democrat's performance in the contest in Denver on Wednesday made them feel more negative about President Obama and almost a third said they felt more positive about his Republican challenger.¶ "Romney did well, he was perceived as doing well, and we're seeing the effect of that today," said Ipsos managing director Cliff Young. "Definitely in the short-term now, he's picking up people because of his performance in the debate."¶ The online tracking poll conducted between Monday and Friday showed 46 percent of likely voters backed Obama, versus 44 percent for Romney.¶ Obama had led Romney by 6 percentage points in the poll released on Wednesday and the edge narrowed to five points - a 48-43 percent lead for Obama - in polling up to Thursday.¶ A CNN/ORC International poll of people who watched the debate showed 67% thought Romney won, compared to 25% for Obama.¶ CBS News poll, uncommitted voters agreed 2 to 1 that Mitt Romney beat President Obama in the first presidential debate¶ The poll conducted by McLaughlin & Associates has a national sample of 1000 likely voters and an over-sample of 300 likely Coloradan voters. In Colorado, Romney leads with 50%, while Obama earns 46%.¶ Mitt Romney leads in seven of the 11 swing states. The QStarNews poll surveyed likely voters from Colorado, Florida, Iowa, Michigan, Nevada, New Hampshire, North Carolina, Ohio, Pennsylvania, Virginia and Wisconsin. The poll included 2737 likely voters from those 11 states and had a margin of error of 1.87 percent.¶ The critical battleground state of Ohio remains a draw, with President Obama holding a one-point lead in the first post-debate survey of the contest there.¶ The latest Rasmussen Reports telephone survey of Likely Ohio Voters, taken last night, finds Obama with 50% support to Mitt Romney’s 49%.¶ The latest Rasmussen Reports telephone survey of Likely Virginia Voters, taken last night, shows Romney earning 49% support to Obama’s 48%

#### even if voters hate Obama’s energy policy they won’t shift to Romney

Lewis, 10/1/12 - senior contributor to The Daily Caller (Matt, The Daily Caller, “Mitt Romney’s struggle to win blue collar Ohio voters”

This sounds trivial, but it matters greatly — especially in places like Ohio.

The Atlantic’s Molly Ball is consistently a “must read,” and her latest column reinforces a point I’ve been making for a long time — that Mitt Romney is in danger of under-performing with working-class whites in key states like the Buckeye state. (Ball’s teaser says it all: “In Appalachian coal country, Romney is now viewed with nearly as much suspicion as Obama — and that may be the story of the 2012 election.”)

There is at least one substantive reason for these voters to be skeptical of Romney. While interviewing Ohio voters, Ball stumbled over an interesting blast from the past:

It turns out Romney, as governor of Massachusetts in 2003, held a press conference in front of a coal-fired power plant. “I will not create jobs or hold jobs that kill people,” he said, and then, gesturing at the facility behind him: “That plant, that plant kills people.” You can see the footage in an Obama campaign ad that’s been airing heavily here. It seems to have made an impression.

The notion that Romney would be worse for coal than Obama seems absurd. Still, Obama is using the line to effectively muddy the waters. All he really needs is for voters to conclude, “they’re both bad,” and Obama can consider that a victory. Ball sums it up thusly,

I heard it over and over again from Ohioans — the idea that Romney stands for the wealthy and not for them. Obama’s depiction of his rival as an out-of-touch rich guy, which has gotten no little assistance from Romney himself, has made a deep and effective impression with these self-consciously working-class voters.

#### Too late to change the election- ideology

Helling ’12 (DAVE HELLING, McClatchy Newspapers Miami Herald 7-22-12 "Is the race for president already over?"

But **a growing number** of **political scientists and campaign consultants** - backed by the **latest polling data** - think the daily campaign back-and-forth **is having no significant effect on voters.** Most Americans have **locked in** their presidential decisions, polls released Thursday suggested, and the already small number of persuadable voters **shrinks by the hour**. Put another way: America could vote for president next week, and the outcome would probably be the same as it will be in November. "That's accurate, barring some really big, big event or change in the political environment," said Alan Abramowitz, a political science professor at Emory University in Atlanta, who has studied presidential voting patterns. Kenneth Warren, a political science professor at St. Louis University, agreed. "Most people have decided who they're going to vote for early on," he said. Recent polls show those who have decided are split almost evenly between Obama and Romney. In a CBS/New York Times poll, Romney led by 1 point. In a Fox News poll, he trailed Obama by 4 points. A National Public Radio poll found Obama leading by 2 points. A Gallup tracking poll over the same time period showed the race dead even. The average of polls puts the Obama advantage at 1.2 percent, according to Real Clear Politics, a political aggregation website. The incumbent has led Romney in that average by a one- to two-point margin since last October. Political scientists and consultants said there were several reasons for early presidential decision-making. In an Internet-cable-TV age, **voters are pounded with political messages daily, helping them make up their minds far in advance** of the election. An incumbent in the race makes at least one of the candidates a known quantity. And American **voters are deeply divided, further cementing their choices.**

#### Nuclear power doesn’t swing the election -- identical positions mean it won’t get drawn into the debate.

**Wood, 9-13-12**

[Elisa, AOL, “What Obama and Romney Don't Say About Energy,” http://energy.aol.com/2012/09/13/what-obama-and-romney-dont-say-about-energy/]

Fossil fuels and renewable energy have become touchy topics in this election, with challenger Mitt Romney painting President Barack Obama as too hard on the first and too fanciful about the second – and Obama saying Romney is out of touch with energy's future. But two other significant resources, nuclear power and energy efficiency, are evoking scant debate. What gives? Nuclear energy supplies about 20 percent of US electricity, and just 18 months ago dominated the news because of Japan's Fukushima Daiichi disaster – yet neither candidate has said much about it so far on the campaign trail. Romney mentioned nuclear power only seven times in his recently released white paper, while he brought up oil 150 times. Even wind power did better with 10 mentions. He pushes for less regulatory obstruction of new nuclear plants, but says the same about other forms of energy. Obama's campaign website highlights the grants made by his administration to 70 universities for research into nuclear reactor design and safety. But while it is easy to find his ideas on wind, solar, coal, natural gas and oil, it takes a few more clicks to get to nuclear energy. The Nuclear Energy Institute declined to discuss the candidates' positions pre-election. However, NEI's summer newsletter said that both "Obama and Romney support the use of nuclear energy and the development of new reactors."

#### Winners win elections- the plan is key to Obama’s momentum

Creamer, 11 – political strategist for over four decades

(Robert, he and his firm, Democracy Partners, work with many of the country’s most significant issue campaigns, one of the major architects and organizers of the successful campaign to defeat the privatization of Social Security, he has been a consultant to the campaigns to end the war in Iraq, pass health care, pass Wall Street reform, he has also worked on hundreds of electoral campaigns at the local, state and national level, "Why GOP Collapse on the Payroll Tax Could be a Turning Point Moment," Huffington Post, 12-23-11, www.huffingtonpost.com/robert-creamer/why-gop-collapse-on-the-p\_b\_1167491.html, accessed 9-1-12, mss)

2). Strength and victory are **enormous political assets.** Going into the New Year, they now belong to the President and the Democrats. One of the reasons why the debt ceiling battle inflicted political damage on President Obama is that it made him appear ineffectual - a powerful figure who had been ensnared and held hostage by the Lilliputian pettiness of hundreds of swarming Tea Party ideological zealots. In the last few months -- as he campaigned for the American Jobs Act -- he has shaken free of those bonds. Now voters have just watched James Bond or Indiana Jones escape and turn the tables on his adversary. Great stories are about a protagonist who meets and overcomes a challenge and is victorious. The capitulation of the House Tea Party Republicans is so important because it feels like the beginning of that kind of heroic narrative. Even today most Americans believe that George Bush and the big Wall Street Banks - not by President Obama -- caused the economic crisis. Swing voters have never lost their fondness for the President and don't doubt his sincerity. But they had begun to doubt his effectiveness. They have had increasing doubts that Obama was up to the challenge of leading them back to economic prosperity. The narrative set in motion by the events of the last several weeks could be a turning point in voter perception. It could well begin to convince skeptical voters that Obama is precisely the kind of leader they thought he was back in 2008 - a guy with the ability to lead them out of adversity - a leader with the strength, patience, skill, will and resoluteness to lead them to victory. That now contrasts with the sheer political incompetence of the House Republican Leadership that allowed themselves to be cornered and now find themselves in political disarray. And it certainly contrasts with the political circus we have been watching in the Republican Presidential primary campaign. 3). This victory will inspire the dispirited Democratic base. Inspiration is the feeling of empowerment - the feeling that you are part of something larger than yourself and can personally play a significant role in achieving that goal. It comes from feeling that together you can overcome challenges and win. Nothing will do more to inspire committed Democrats than the sight of their leader -- President Obama - out maneuvering the House Republicans and forcing them into complete capitulation. The events of the last several weeks will send a jolt of electricity through the Progressive community. The right is counting on Progressives to be demoralized and dispirited in the coming election. The President's victory on the payroll tax and unemployment will make it ever more likely that they will be wrong. 4). When you have them on the run, that's the time to chase them. The most important thing about the outcome of the battle over the payroll tax and unemployment is that it shifts the political momentum at a critical time. Momentum is an independent variable in any competitive activity - including politics. In a football or basketball game you can feel the momentum shift. The tide of battle is all about momentum. The same is true in politics. And in politics it is even more important because the "spectators" are also the players - the voters. **People** follow - and **vote -- for winners**. The bandwagon effect is enormously important in political decision-making. Human beings like to travel in packs. They like to be at the center of the mainstream. Momentum shifts affect their perceptions of the mainstream. For the last two years, the right wing has been on the offensive. Its Tea Party shock troops took the battle to Democratic Members of Congress. In the Mid-Terms Democrats were routed in district after district. Now the tide has turned. And when the tide turns -when you have them on the run - that's the time to chase them.

#### The plan creates jobs in key swing states like Ohio and Pennsylvania -- boosts reelection probability.

Korte, 4-27-12

[Gregory, USA Today, “Politics stands in the way of nuclear plant's future,” http://www.usatoday.com/money/industries/energy/story/2012-04-13/usec-centrifuges-loan-guarantees/54560118/1]

The stakes are high: It's an election year, and Ohio is a swing state. USEC estimates the project at its peak will generate 3,158 jobs in Ohio, and 4,284 elsewhere. Pike County, home to the centrifuges, has a 13% unemployment rate — the highest in Ohio. The median household income is about $40,000. The average job at USEC pays $77,316. Centrifuge parts are stacked up in Piketon. "It's as shovel-ready as they come," says spokeswoman Angela Duduit. Indeed, the project has enjoyed bipartisan support. A USA TODAY review of DOE records shows that no fewer than 46 members of Congress — 32 Republicans and 14 Democrats — have pressured the Obama administration to approve the loan guarantee for USEC. "Quick action is paramount," said one bipartisan letter. "It is imperative that this application move forward now," said another. The congressional support comes from states such as Ohio, Pennsylvania, Tennessee, Kentucky, West Virginia, Missouri, Alabama, Indiana, Maryland, North Carolina and South Carolina— an almost exact overlay of the states that would benefit from the 7,442 jobs the company says would be created.

Ohio key

Sowinski 12 [Greg Sowinski, Lima News, “Senator tells Husky workers he’s got their backs”, Aug 15, 2012]

Brown said Ohio is key for President Barack Obama’s re-election.¶ “Ohio is still the most important state in this election,” he said.¶ But the biggest issue is the economy, he said.¶ “The economy always is,” he said. “We’re going in the right direction but we need to do better.”¶ Brown said the state has reduced unemployment from 10.5 percent to less than 7.5 percent under Obama, and the country has added 500,000 manufacturing jobs after losing 5 million of those jobs.

### States

#### Federal guarantees are vital to getting investors on board – superior credit rating

**Sullivan and Walsh, 8 -** Mary Anne Sullivan, partner in Hogan & Hartson's energy practice, has more than 25 years of experience as an energy lawyer. She previously served as general counsel of the U.S. Department of Energy and as deputy general counsel for environment and nuclear programs. Sam Walsh is an associate at Hogan & Hartson (“Federal Loan Guarantees,” Electric Light and Power, Mar/April, ABI Inform)

In their rulemaking comments, Wall Street firms emphasized that a loan guarantee must represent the unconditional commitment of the full faith and credit of the United States if the program is to succeed in attracting affordable private investment to innovative technologies. The final rule seems to have calmed concerns that the guarantees might be conditioned in a way that would preclude the "AAA" rating for the federally guaranteed debt that the program was designed to assure. The guarantees will be absolute, absent fraud or material misrepresentation by the holder of a guaranteed obligation.

#### State incentives fail – federal loan guarantees attract substantially more investment capital

**NEI, 11** – Nuclear Energy Institute “Issues in Focus Loan Guarantees For Clean Energy Development” http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCkQFjAB&url=http%3A%2F%2Fwww.nei.org%2Ffilefolder%2Floanguaranteefastfacts.pdf&ei=PCJsUNTiJKbA2gXymYAg&usg=AFQjCNEzvSlK0TiMZStFOzXeQDIf76vQBw)

 State governments are doing their part. Many of the states where new nuclear plants are planned – including Florida, Virginia, Texas, Louisiana, Mississippi, North Carolina and South Carolina – have passed legislation or implemented new regulations to encourage construction of new nuclear power plants by providing financing support and/or assurance of investment recovery.

 By itself, this state support is not sufficient. The federal government must also provide financing support for deployment of clean energy technologies in the numbers necessary to address growing U.S. electricity needs and reduce carbon emissions. The clean energy loan guarantee program authorized by the Energy Policy Act of 2005 is equally important.

 Although tax stimulus – either in the form of tax credits or more favorable depreciation terms – can play an important role in encouraging investment, loan guarantees are a very efficient way to mobilize private capital. Tax benefits have a direct, dollar-for-dollar impact on the federal budget. Even if the credit subsidy cost associated with a loan guarantee is appropriated, loan guarantees provide substantial leverage. Tens of millions of dollars in appropriations to support a loan guarantee program can leverage tens of billions of dollars in private sector investment.

#### Doesn’t solve the case – restrictions are codified in federal law – prevents the **requisite licensing**, means the cp fails to cause commercialization – that’s 1ac Martin AND

MIT, 10 [Massachusetts Institute of Technology, “Nuclear Energy Research and Development Roadmap: Report to Congress”, April 2010, http://ocw.mit.edu/courses/nuclear-engineering/22-033-nuclear-systems-design-project-fall-2011/readings/MIT22\_033F11\_read\_core\_doe.pdf]

 In the United States, it is the responsibility of industry to design, construct, and operate commercial nuclear power plants. However, DOE has statutory authority under the Atomic Energy Act to promote and support nuclear energy technologies for commercial applications. In general, appropriate government roles include researching high-potential technologies beyond the investment horizon of industry and also reducing the technical risks of new technologies. In the case of new commercial reactor designs, potential areas of NE involvement could include: Enabling new technologies to be inserted into emerging and future designs by providing access to unique laboratory resources for new technology development and, where appropriate, demonstration. • Working through the laboratories and universities to provide unique expertise and facilities to industry for R&D in the areas of: o Innovative concepts and advanced technologies. o Fundamental phenomena and performance data. o Advanced modeling and simulation capabilities. APRIL 2010 22 34 NUCLEAR ENERGY RESEARCH AND DEVELOPMENT ROADMAP o New technology testing and, if appropriate, demonstration. o Advanced manufacturing methods. Representative R&D activities that support each of the roles stated above are presented below. The level of DOE investment relative to industry investment will vary across the spectrum of these activities, with a generally increasing trend in DOE investment for longer-term activities. Finally, there is potential to leverage and amplify effective U.S. R&D through collaborations with other nations through multilateral and bilateral agreements including the Generation IV International Forum, which is investigating multiple advanced reactor concepts. DOE is also a participant in OECD/NEA and IAEA initiatives that bear directly on the development and deployment of new reactor systems.

#### Congress key

Fertel, 05 - Senior Vice President And Chief Nuclear Officer Nuclear Energy Institute (Marvin, CQ Congressional Testimony, “NUCLEAR POWER'S PLACE IN A NATIONAL ENERGY POLICY,” 4/28, lexis) //DH

Industry and government will be prepared to meet the demand for new emission-free baseload nuclear plants in the 2010 to 2020 time frame only through a sustained focus on the necessary programs and policies between now and then. As it has in the past, strong Congressional oversight will be necessary to ensure effective and efficient implementation of the federal government's nuclear energy programs, and to maintain America's leadership in nuclear technology development and its influence over important diplomatic initiatives like nonproliferation. Such efforts have provided a dramatic contribution to global security, as evidenced by the U.S.-Russian nonproliferation agreement to recycle weapons-grade material from Russia for use in American reactors. Currently, more than 50 percent of U.S. nuclear power plant fuel depends on converted Russian warhead material. Nowhere is continued congressional oversight more important than with DOE's program to manage the used nuclear fuel from our nuclear power plants. Continued progress toward a federal used nuclear fuel repository is necessary to support nuclear energy's vital role in a comprehensive national energy policy and to support the remediation of DOE defense sites. Since enactment of the 1982 Nuclear Waste Policy Act, DOE's federal repository program has repeatedly overcome challenges, and challenges remain before the Yucca Mountain facility can begin operation. But as we address these issues, it is important to keep the overall progress of the program in context. There is international scientific consensus that a deep geologic repository is the best solution for long-term disposition of used military and commercial nuclear power plant fuel and high-level radioactive byproducts. The Bush administration and Congress, with bipartisan support, affirmed the suitability of Yucca Mountain for a repository in 2002. Over the past three years, the Energy Department and its contractors have made considerable progress providing yet greater confirmation that this is the correct course of action and that Yucca Mountain is an appropriate site for a national repository. --During the past year, federal courts have rejected significant legal challenges by the state of Nevada and others to the Nuclear Waste Policy Act and the 2002 Yucca Mountain site suitability determination. These challenges questioned the constitutionality of the Yucca Mountain Development Act and DOE's repository system, which incorporates both natural and engineered barriers to contain radioactive material safely. In the coming year, Congress will play an essential role in keeping this program on schedule, by taking the steps necessary to provide increased funding for the project in fiscal 2006 and in future years. Meeting DOE's schedule for initial repository operation requires certainty in funding for the program. This is particularly critical in view of projected annual expenditures that will exceed $1 billion beginning in fiscal 2007. Meeting these budget requirements calls for a change in how Congress provides funds to the project from monies collected for the Nuclear Waste Fund. The history of Yucca Mountain funding is evidence that the current funding approach must be modified. Consumer fees (including interest) committed to the Nuclear Waste Fund since its f6rmation in 1983 total more than $24 billion. Consumers are projected to pay between $750 million to $800 million to the fund each year, based on electricity generated at the nation's 103 reactors. This is more than $2 million per day. Although about $8 billion has been used for the program, the balance in the fund is nearly $17 billion. In each of the past several years, there has been a gap between the annual fees paid by consumers of electricity from nuclear power plants and disbursements from the fund for use by DOE at Yucca Mountain. Since the fund was first established, billions of dollars paid by consumers of electricity from nuclear power plants to the Nuclear Waste Fund-intended solely for the federal government's used fuel program-in effect have been used to decrease budget deficits or increase surpluses. The industry believes that Congress should change the funding mechanism for Yucca Mountain so that payments to the Nuclear Waste Fund can be used only for the project and be excluded from traditional congressional budget caps. Although the program should remain subject to congressional oversight, Yucca Mountain appropriations should not compete each year for funding with unrelated programs when Congress directed a dedicated funding stream for the project. The industry also believes that it is appropriate and necessary to consider an alternative perspective on the Yucca Mountain project. This alternative would include an extended period for monitoring operation of the repository for up to 300 years after spent fuel is first placed underground. The industry believes that this approach would provide ongoing assurance and greater confidence that the repository is performing as designed, that public safety is assured, and that the environment is protected. It would also permit DOE to apply evolving innovative technologies at the repository. Through this approach, a scientific monitoring program would identify additional scientific information that can be used in repository performance models. The project then could update the models, and make modifications in design and operations as appropriate. Congressional committees like this one can help ensure that DOE does not lose sight of its responsibility for used nuclear fuel management and disposal, as stated by Congress in the Nuclear Waste Policy Act of 1982. The industry fully supports the fundamental need for a repository so that used nuclear fuel and the byproducts of the nation's nuclear weapons program are securely managed in an underground, specially designed facility. World-class science has demonstrated that Yucca Mountain is the best site for that facility. A public works project of this magnitude will inevitably face challenges. Yet, none is insurmountable. DOE and its contractors have made significant progress on the project and will continue to do so as the project enters the licensing phase. Congressional oversight also can play a key role in maintaining and encouraging the stability of the NRC's regulatory process. Such stability is essential for our 103 operating nuclear plants and equally critical in licensing new nuclear power plants. Congress played a key role several years ago in encouraging the NRC to move toward a new oversight process for the nation's nuclear plants, based on quantitative performance indicators and safety significance. Today's reactor oversight process is designed to focus industry and NRC resources on equipment, components and operational issues that have the greatest importance to, and impact on, safety. The NRC and the industry have worked hard to identify and implement realistic security requirements at nuclear power plants. In the three-and-a-half years since 9/11, the NRC has issued a series of requirements to increase security and enhance training for security programs. The industry complied-fully and rapidly. In the days and months following Sept. 11, quick action was required. Orders that implemented needed changes quickly were necessary. Now, we should return to the orderly process of regulating through regulations. The industry has spent more than $1 billion enhancing security since September 2001. We've identified and fixed vulnerabilities. Today, the industry is at the practical limit of what private industry can do to secure our facilities against the terrorist threat. NRC Chairman Nils Diaz and other commissioners have said that the industry has achieved just about everything that can be reasonably achieved by a civilian force. The industry now needs a transition period to stabilize the new security requirements. We need time to incorporate these dramatic changes into our operations and emergency planning programs and to train our employees to the high standards of our industry-and to the appropriately high expectations of the NRC. Both industry and the NRC need congressional oversight to support and encourage this kind of stability. CONCLUSION Electricity generated by America's nuclear power plants over the past half-century has played a key part in our nation's growth and prosperity. Nuclear power produces over 20 percent of the electricity used in the United States today without producing air pollution. As our energy demands continue to grow in years to come, nuclear power should play an even greater role in meeting our energy and environmental needs. The nuclear energy industry is operating its reactors safely and efficiently. The industry is striving to produce more electricity from existing plants. The industry is also developing more efficient, next-generation reactors and exploring ways to build them more cost-effectively. The public sector, including the oversight committees of the U.S. Congress, can help maintain the conditions that ensure Americans will continue to reap the benefits of our operating plants, and create the conditions that will spur investment in America's energy infrastructure, including new nuclear power plants. One important step is passage of comprehensive energy legislation that recognizes nuclear energy's contributions to meeting our growing energy demands, ensuring our nation's energy security and protecting our environment. Equally important, however, is the need to ensure effective and efficient implementation of existing laws, like the Nuclear Waste Policy Act, and to provide federal agencies with the resources and oversight necessary to discharge their statutory responsibilities in the most efficient way possible. The commercial nuclear power sector was born in the United States, and nations around the world continue to look to this nation for leadership in this technology and in the issues associated with nuclear power. Our ability to influence critical international policies in areas like nuclear nonproliferation, for example, depends on our ability to maintain a leadership role in prudent deployment, use and regulation of nuclear energy technologies here at home, in the United States, and on our ability to manage the technological and policy challenges-like waste management-that arise with all advanced technologies.

### Cap

#### There is no alternative to capitalism or a clear transition

Kliman, 4 – PhD, Professor of Economics at Pace University

(Andrew, Andrew Kliman’s Writings, “Alternatives to Capitalism: What Happens After the Revolution?” http://akliman.squarespace.com/writings/)

Have we faced the harsh reality that, unless th[e] inseparability between the dialectics of thought and of revolution does exist, any country that does succeed in its revolution may retrogress, since the world revolution cannot occur at one stroke everywhere and world capitalism continues to exist? … [Lenin’s] *practice* of the dialectic of thought as well as of revolution underlined his call for a Third International. Raya Dunayevskaya, “Marxist-Humanist Perspectives, 1985-86” I. Concretizing the Vision of a New Human Society We live at a moment in which it is harder than ever to articulate a liberatory alternative to capitalism. As we all know, the collapse of state-capitalist regimes that called themselves “Communist,” as well as the widespread failures of social democracy to remake society, have given rise to a widespread acceptance of Margaret Thatcher’s TINA – the belief that “there is no alternative.” Yet the difficulty in articulating a liberatory alternative is not mostly the product of these events. It is an inheritance from the past. To what extent has such an alternative ever been articulated? There has been a lot of progress – in theory and especially in practice – on the problem of forms of organization – but new organizational forms by themselves are not yet an alternative. A great many leftists, even revolutionaries, did of course regard nationalized property and the State Plan, under the control of the “vanguard” Party, as socialism, or at least as the basis for a transition to socialism. But even before events refuted this notion, it represented, at best, an evasion of the problem. It was largely a matter of leftists with authoritarian personalities subordinating themselves and others to institutions and power with a blind faith that substituted for thought. How such institutions and such power would result in human liberation was never made clear. Vague references to “transition” were used to wave the problem away. Yet as Marxist-Humanism has stressed for more than a decade, the anti-Stalinist left is also partly responsible for the crisis in thought. It, too, failed to articulate a liberatory alternative, offering in place of private- and state-capitalism little more than what Hegel (*Science of Logic*, Miller trans., pp. 841-42) called “the empty negative … a *presumed* absolute”: The impatience that insists *merely* on getting beyond the *determinate* … and finding itself immediately in the absolute, has before it as cognition nothing but the empty negative, the abstract infinite; in other words, a *presumed* absolute, that is presumed because it is not *posited*, not *grasped*; grasped it can only be through the *mediation* of cognition … . The question that confronts us nowadays is whether we can do better. Is it possible to make the vision of a new human society more concrete and determinate than it now is, through the mediation of cognition? According to a long-standing view in the movement, it is not possible. The character of the new society can only be concretized by practice alone, in the course of trying to remake society. Yet if this is true, we are faced with a vicious circle from which there seems to be no escape, because acceptance of TINA is creating barriers in practice. In the perceived absence of an alternative, practical struggles have proven to be self-limiting at best. They stop short of even tryingto remake society totally – and for good reason. As Bertell Ollman has noted (Introduction to *Market Socialism: The Debate among Socialists*, Routledge, 1998, p. 1), “People who believe [that there is no alternative] will put up with almost any degree of suffering. Why bother to struggle for a change that cannot be? … people [need to] have a good reason for choosing one path into the future rather than another.”

#### Vagueness means the alt doesn’t solve

Grossberg 92 – Communication Studies Professor, UNC (Lawrence, We Gotta Get Out of This Place, p 388-90)

If it is capitalism that is at stake, our moral opposition to it has to be tempered by the realities of the world and the possibilities of political change. Taking a simple negative relation to it, as if the moral condemnation of the evil of capitalism were sufficient (granting that it does establish grotesque systems of inequality and oppression), is not likely to establish a viable political agenda. First, it is not at all clear what it would mean to overthrow capitalism in the current situation. Unfortunately, despite our desires, "the masses" are **not waiting to be led into revolution**, and it is not simply a case of their failure to recognize their own best interests, as if we did. Are we to decide-rather undemocratically, I might add-to overthrow capitalism in spite of their legitimate desires? Second, as much as capitalism is the cause of many of the major threats facing the world, at the moment it may also be one of the few forces of stability, unity and even, within limits, a certain "civility" in the world. The world system is, unfortunately, simply too precarious and the alternative options not all that promising. Finally, the appeal of an as yet unarticulated and even unimagined future, while perhaps powerful as a moral imperative, is simply too weak in the current context to effectively organize people, and **too vague to provide** **any** **direction**.

#### Cap solves the environment—history is on our side

Bhagwati 4– Economics Professor, Columbia (Jagdish, In Defense of Globalization, p 144-5, AG)

The belief that specific pollutants, such as sulfur dioxide, resulting from increased economic activity will rise in urban areas as per capita income increases depends on two assumptions: that all activities expand uniformly and that pollution per unit output in an activity will not diminish. But neither assumption is realistic. As income rises, activities that cause more pollution may contract and those that cause less pollution may expand, so the sulfur dioxide concentration may fall instead of rise. In fact, as development occurs, economies typically shift from primary production, which is often pollution intensive, to manufactures, which are often less so, and then to traded services, which are currently even less pollution-intensive. This natural evolution itself could then reduce the pollution-intensity of income as development proceeds. Then again, the available technology used, and technology newly invented, may become more environment-friendly over time. Both phenomena constitute an ongoing, observed process. The shift to environment-friendly technology can occur naturally as households, for example, become less poor and shift away from indoor cooking with smoke-causing coal-based fires to stoves using fuels that cause little smoke. 19 But this shift is often a result also of environment-friendly technological innovation prompted by regulation. Thus, restrictions on allowable fuel efficiency have promoted research by the car firms to produce engines that yield more miles per gallon. But these regulations are created by increased environmental consciousness, for which the environmental groups can take credit. And the rise of these environmental groups is, in turn, associated with increased incomes. Also, revelations about the astonishing environmental degradation in the Soviet Union and its satellites underline how the absence of democratic feedback and controls is a surefire recipe for environmental neglect. The fact that economic growth generally promotes democracy, as discussed in Chapter 8, is yet another way in which rising income creates a better environment. In all these ways, then, increasing incomes can reduce rather than increase pollution. In fact, for several pollutants, empirical studies have found a bell-shaped curve: pollution levels first rise with income but then fall with it. 20 The economists Gene Grossman and Alan Krueger, who estimated the levels of different pollutants such as sulfur dioxide in several cities worldwide, were among the first to show this, estimating that for sulfur dioxide levels, the peak occurred in their sample at per capita incomes of $5,000–6,000. 21 Several historical examples can also be adduced: the reduction in smog today compared to what the industrial revolution produced in European cities in the nineteenth century, and the reduced deforestation of United States compared to a century ago.

#### Perm—do the plan and all non-mutually exclusive parts of the alternative—if the alt overcomes the status quo, the perm overcomes the link

#### Capitalism fosters innovation that’s vital to overcoming resource shortages

Smith, 93 (Fred L., Jr., President and Founder of the Competitive Enterprise Institute, The Market and Nature, September, http://cei.org/gencon/019,03108.cfm)

The prophets of sustainability have consistently predicted an end to the world’s abundant resources, while the defenders of the free market point to the power of innovation—innovation which is encouraged in the marketplace. Consider the agricultural experience. Since 1950, improved plant and animal breeds, expanded availability and types of agri-chemicals, innovative agricultural techniques, expanded irrigation, and better pharmaceutical products have all combined to spur a massive expansion of world food supplies. That was not expected by those now championing “sustainable development.” Lester Brown, in his 1974 Malthusian publication By Bread Alone, suggested that crop-yield increases would soon cease. Since that date, Asian rice yields have risen nearly 40 percent, an approximate increase of 2.4 percent per year. This rate is similar to that of wheat and other grains. In the developed world it is food surpluses, not food shortages, that present the greater problem, while political institutions continue to obstruct the distribution of food in much of the Third World. Man’s greater understanding and ability to work with nature have made it possible to achieve a vast improvement in world food supplies, to improve greatly the nutritional levels of a majority of people throughout the world in spite of rapid population growth. Moreover, this has been achieved while reducing the stress to the environment. To feed the current world population at current nutritional levels using 1950 yields would require plowing under an additional 10 to 11 million square miles, almost tripling the world’s agricultural land demands (now at 5.8 million square miles). This would surely come at the expense of land being used for wildlife habitat and other applications. Moreover, this improvement in agriculture has been matched by improvements in food distribution and storage, again encouraged by natural market processes and the “profit incentive” that so many environmentalists deplore. Packaging has made it possible to reduce food spoilage, reduce transit damage, extend shelf life, and expand distribution regions. Plastic and other post-use wraps along with the ubiquitous Tupperware have further reduced food waste. As would be expected, the United States uses more packaging than Mexico, but the additional packaging results in tremendous reductions in waste. On average, a Mexican family discards 40 percent more waste each day. Packaging often eliminates more waste than it creates. Despite the fact that capitalism has produced more environment-friendly innovations than any other economic system, the advocates of sustainable development insist that this process must be guided by benevolent government officials. That such efforts, such as the United States’ synthetic fuels project of the late 1970s, have resulted in miserable failures is rarely considered. It is remarkable how many of the participants at the UN Earth Summit seemed completely oblivious to this historical reality. In the free market, entrepreneurs compete in developing low-cost, efficient means to solve contemporary problems. The promise of a potential profit, and the freedom to seek after it, always provides the incentive to build a better mousetrap, if you will. Under planned economies, this incentive for innovation can never be as strong, and the capacity to reallocate resources toward more efficient means of production is always constrained. This confusion is also reflected in the latest environmental fad: waste reduction. With typical ideological fervor, a call for increased efficiency in resource use becomes a call to use less of everything, regardless of the cost. Less, we are told, is more in terms of environmental benefit. But neither recycling nor material or energy use reductions per se are a good thing, even when judged solely on environmental grounds. Recycling paper often results in increased water pollution, increased energy use, and, in the United States, actually discourages the planting of new trees. Mandating increased fuel efficiency for automobiles reduces their size and weight, which in turn reduces their crashworthiness and increases highway fatalities. Environmental policies must be judged on their results, not just their motivations. Overcoming Scarcity Environmentalists tend to focus on ends rather than processes. This is surprising given their adherence to ecological teaching. Their obsession with the technologies and material-usage patterns of today reflects a failure to understand how the world works. The resources people need are not chemicals, wood fiber, copper, or the other raw materials of concern to the sustainable-development school. We demand housing, transportation, and communication services. How those demands are met is a derivative result based on competitive forces—forces which respond by suggesting new ways to meet old needs as well as improving the ability to meet needs in older ways. Consider, for example, the fears expressed in the early post-war era that copper would soon be in short supply. Copper was the life-blood of the world’s communication system, essential to linking together humanity throughout the world. Extrapolations suggested problems and copper prices escalated accordingly. The result? New sources of copper in Africa, South America, and even the United States and Canada, were found. That concern, however, also prompted others to review new technologies, an effort that produced today’s rapidly expanding fiber optics links. Such changes would be viewed as miraculous if not now commonplace in the industrialized, and predominantly capitalistic, nations of the world. Data assembled by Lynn Scarlett of the Reason Foundation noted that a system requiring, say, 1,000 tons of copper can be replaced by as little as 25 kilograms of silicon, the basic component of sand. Moreover, the fiber-optics system has the ability to carry over 1,000 times the information of the older copper wire. Such rapid increases in communication technology are also providing for the displacement of oil as electronic communication reduces the need to travel and commute. The rising fad of telecommuting was not dreamed up by some utopian environmental planner, but was rather a natural outgrowth of market processes. It is essential to understand that **physical resources are, in and of themselves, largely irrelevant**. It is the interaction of man and science that creates resources: Sand and knowledge become fiber optics. Humanity and its institutions determine whether we eat or die. The increase of political control over physical resources and new technologies only increases the likel

#### Cap isn’t the root cause of war

MacKenzie 3—prof of economics at Coast Guard Academy. Former prof of economics at Kean. BA in Economics and Management Science at Kean. MA in Economics from U Connecticut. PhD in economics from George mason (DW, “Does Capitalism Require War?,” 7 April 2003, <http://mises.org/story/1201>,)

Perhaps the oddest aspect of these various, but similar, claims is that their proponents appeal so often to historical examples. They often claim that history shows how capitalism is imperialistic and warlike or at least benefits from war. Capitalism supposedly needs a boost from some war spending from time to time, and history shows this. Robert Higgs demonstrated that the wartime prosperity during the Second World War was illusory[i]. This should come to no surprise to those who lived through the deprivations of wartime rationing. We do not need wars for prosperity, but does capitalism breed war and imperialism anyway? History is rife with examples of imperialism. The Romans, Alexander, and many others of the ancient world waged imperialistic wars. The Incan Empire and the empire of Ancient China stand as examples of the universal character of imperialism. Who could possibly claim that imperialism grew out of the prosperity of these ancient civilizations? Imperialism precedes modern industrial capitalism by many centuries. Uneven wealth distribution or underconsumption under capitalism obviously did not cause these instances of imperialism. Of course, this fact does not prove that modern capitalism lacks its own imperialistic tendencies. The notion that income gets underspent or maldistributed lies at the heart of most claims that capitalism either needs or produces imperialistic wars. As J.B. Say argued, supply creates its own demand through payments to factors of production. Demand Side economists Hobson and Keynes argued that there would be too little consumption and too little investment for continuous full employment. We save too much to have peace and prosperity. The difficulty we face is not in oversaving, but in underestimating the workings of markets and the desires of consumers. Doomsayers have been downplaying consumer demand for ages. As demand side economist J.K. Galbraith claimed, we live in an affluent society, where most private demands have been met. Of course, Hobson made the same claim much earlier. Earlier and stranger still, mercantilists claimed that 'wasteful acts' such as tea drinking, gathering at alehouses, taking snuff, and the wearing of ribbons were unnecessary luxuries that detracted from productive endeavors. The prognostications of esteemed opponents of capitalism have consistently failed to predict consumer demand. Today, consumers consume at levels that few long ago could have imagined possible. There is no reason to doubt that consumers will continue to press for ever higher levels of consumption. Though it is only a movie, Brewster's Millions illustrates how creative people can be at spending money. People who do actually inherit, win, or earn large sums of money have little trouble spending it. Indeed, wealthy individuals usually have more trouble holding on to their fortunes than in finding ways to spend them. We are never going to run out of ways to spend money. Many of the complaints about capitalism center on how people save too much. One should remember that there really is no such thing as saving. Consumers defer consumption to the future only. As economist Eugen Böhm-Bawerk demonstrated, people save according to time preference. Savings diverts resources into capital formation. This increases future production. Interest enhanced savings then can purchase these goods as some consumers cease to defer their consumption. Keynes' claim that animal spirits drive investment has no rational basis. Consumer preferences are the basis for investment. Investors forecast future consumer demand. Interest rates convey knowledge of these demands. The intertemporal coordination of production through capital markets and interest rates is not a simple matter. But Keynes' marginal propensities to save and Hobson's concentration of wealth arguments fail to account for the real determinants of production through time. Say's Law of Markets holds precisely because people always want a better life for themselves and those close to them. Falling interest rates deter saving and increase investment. Rising interest rates induce saving and deter investment. This simple logic of supply and demand derives from a quite basic notion of self interest. Keynes denied that the world worked this way. Instead, he claimed that bond holders hoard money outside of the banking system, investment periodically collapses from 'the dark forces of time and uncertainty, and consumers save income in a mechanical fashion according to marginal propensities to save. None of these propositions hold up to scrutiny, either deductive or empirical. Speculators do not hoard cash outside of banks. To do this means a loss of interest on assets. People do move assets from one part of the financial system to another. This does not cause deficient aggregate demand. Most money exists in the banking system, and is always available for lending. In fact, the advent of e-banking makes such a practice even less sensible. Why hoard cash when you can move money around with your computer? It is common knowledge that people save for homes, education, and other expensive items, not because they have some innate urge to squirrel some portion of their income away. This renders half of the market for credit rational. Investors do in fact calculate rates of return on investment. This is not a simple matter. Investment entails some speculation. Long term investment projects entail some uncertainty, but investors who want to actually reap profits will estimate the returns on investment using the best available data. Keynes feared that the dark forces of time and uncertainty could scare investors. This possibility, he thought, called for government intervention. However, government intervention (especially warfare) generally serves to increase uncertainty. Private markets have enough uncertainties without throwing politics into the fray. The vagaries of political intervention serve only to darken an already uncertain future. Capital markets are best left to capitalists. Nor is capital not extracted surplus value. It comes not from exploitation. It is simply a matter of people valuing their future wellbeing. Capitalists will hire workers up to the point where the discounted marginal product of their labor equals the wage rate. To do otherwise would mean a loss of potential profit. Since workers earn the marginal product of labor and capital derives from deferred consumption, Marxist arguments about reserve armies of the unemployed and surplus extraction fail. It is quite odd to worry about capitalists oversaving when many complain about how the savings rate in the U.S. is too low. Why does the U.S., as the world's 'greatest capitalist/imperialist power', attract so much foreign investment? Many Americans worry about America's international accounts. Fears about foreigners buying up America are unfounded, but not because this does not happen. America does have a relatively low national savings rate. It does attract much foreign investment, precisely because it has relatively secure property rights. Indeed, much of the third world suffers from too little investment. The claims of Marxists, and Hobson, directly contradict the historical record. Sound theory tells us that it should. The Marxist claim that capitalists must find investments overseas fails miserably. Larry Kudlow has put his own spin on the false connection between capitalism and war. We need the War as shock therapy to get the economy on its feet. Kudlow also endorses massive airline subsidies as a means of restoring economic prosperity. Kudlow and Krugman both endorse the alleged destructive creation of warfare and terrorism. Kudlow has rechristened the Broken Window fallacy the Broken Window principle. Kudlow claims that may lose money and wealth in one way, but we gain it back many time over when the rebuilding is done. Kudlow and Krugman have quite an affinity for deficits. Krugman sees debt as a sponge to absorb excess saving. Kudlow see debt as a short term nuisance that we can dispel by maximizing growth. One would think that such famous economists would realize that competition does work to achieve the goal of optimum growth based on time preference, but this is not the case. While these economists have expressed their belief in writing, they could do more. If the destruction of assets leads to increased prosperity, then they should teach this principle by example. Kudlow and Krugman could, for instance, help build the economy by demolishing their own private homes. This would have the immediate effect of stimulating demand for demolition experts, and the longer term affect of stimulating the demand for construction workers. They can create additional wealth by financing the reconstruction of their homes through debt. By borrowing funds, they draw idle resources into use and stimulate financial activity. Of course, they would both initially lose wealth in one way. But if their thinking is sound, they will gain it back many times over as they rebuild. The truth is that their beliefs are fallacious. Bastiat demonstrated the absurdity of destructive creation in his original explanation of the opportunity costs from repairing broken windows. Kudlow is quite clear about his intentions. He wants to grow the economy to finance the war. As Kudlow told some students, "The trick here is to grow the economy and let the economic growth raise the revenue for the war effort"[ii]. Kudlow also praises the Reagan Administration for growing the economy to fund national defense. Here Kudlow's attempts to give economic advice cease completely. His argument here is not that capitalism needs a shot in the arm. It is that resources should be redirected towards ends that he sees fit. Kudlow is a war hawk who, obviously, cannot fund this or any war personally. He instead favors using the state to tax others to fund what he wants, but cannot afford. He seems to think that his values matter more than any other's. Why should anyone else agree with this? Kudlow tarnishes the image of laissez faire economics by parading his faulty reasoning and his claims that his wants should reign supreme as a pro-market stance. Unfortunately, it is sometimes necessary to defend capitalism from alleged advocates of liberty, who employ false dogmas in pursuit of their own militaristic desires. Capitalism neither requires nor promotes imperialist expansion. Capitalism did not create imperialism or warfare. Warlike societies predate societies with secure private property. The idea that inequity or underspending give rise to militarism lacks any rational basis. Imperialistic tendencies exist due to ethnic and nationalistic bigotries, and the want for power. Prosperity depends upon our ability to prevent destructive acts. The dogma of destructive creation fails as a silver lining to the cloud of warfare. Destructive acts entail real costs that diminish available opportunities. The idea that we need to find work for idle hands in capitalism at best leads to a kind of Sisyphus economy where unproductive industries garner subsidies from productive people. At worst, it serves as a supporting argument for war. The more recent versions of the false charges against capitalism do nothing to invalidate two simple facts. Capitalism generates prosperity by creating new products. War inflicts poverty by destroying existing wealth. There is no sound reason to think otherwise.

#### Capitalism is sustainable – no alternative

Rogoff, 12/23/11[Professor of Economics and Public Policy at Harvard University, and was formerly chief economist at the IMF. Is Modern Capitalism Sustainable?, <http://www.namibian.com.na/news/full-story/archive/2011/december/article/is-modern-capitalism-sustainable/>]

CAMBRIDGE – I am often asked if the recent global financial crisis marks the beginning of the end of modern capitalism. It is a curious question, because it **seems to presume that there is a viable replacement** waiting in the wings. The truth of the matter is that, for now at least, the only serious alternatives to today’s dominant Anglo-American paradigm are **other forms of capitalism**. Continental European capitalism, which combines generous health and social benefits with reasonable working hours, long vacation periods, early retirement, and relatively equal income distributions, would seem to have everything to recommend it – except sustainability. China’s Darwinian capitalism, with its fierce competition among export firms, a weak social-safety net, and widespread government intervention, is widely touted as the inevitable heir to Western capitalism, if only because of China’s huge size and consistent outsize growth rate. Yet China’s economic system is continually evolving. Indeed, it is far from clear how far China’s political, economic, and financial structures will continue to transform themselves, and whether China will eventually morph into capitalism’s new exemplar. In any case, China is still encumbered by the usual social, economic, and financial vulnerabilities of a rapidly growing lower-income country. Perhaps the real point is that, in the broad sweep of history, all current forms of capitalism are ultimately transitional. Modern-day capitalism has had an extraordinary run since the start of the Industrial Revolution two centuries ago, **lifting billions of ordinary people out of abject poverty**. Marxism and heavy-handed socialism have **disastrous records** by comparison. But, as industrialisation and technological progress spread to Asia (and now to Africa), someday the struggle for subsistence will no longer be a primary imperative, and contemporary capitalism’s numerous flaws may loom larger. First, even the leading capitalist economies have failed to price public goods such as clean air and water effectively. The failure of efforts to conclude a new global climate-change agreement is symptomatic of the paralysis. Second, along with great wealth, capitalism has produced extraordinary levels of inequality. The growing gap is partly a simple byproduct of innovation and entrepreneurship. People do not complain about Steve Jobs’s success; his contributions are obvious. But this is not always the case: great wealth enables groups and individuals to buy political power and influence, which in turn helps to generate even more wealth. Only a few countries – Sweden, for example – have been able to curtail this vicious circle without causing growth to collapse. A third problem is the provision and distribution of medical care, a market that fails to satisfy several of the basic requirements necessary for the price mechanism to produce economic efficiency, beginning with the difficulty that consumers have in assessing the quality of their treatment. The problem will only get worse: health-care costs as a proportion of income are sure to rise as societies get richer and older, possibly exceeding 30% of GDP within a few decades. In health care, perhaps more than in any other market, many countries are struggling with the moral dilemma of how to maintain incentives to produce and consume efficiently without producing unacceptably large disparities in access to care. It is ironic that modern capitalist societies engage in public campaigns to urge individuals to be more attentive to their health, while fostering an economic ecosystem that seduces many consumers into an extremely unhealthy diet. According to the United States Centers for Disease Control, 34% of Americans are obese. Clearly, conventionally measured economic growth – which implies higher consumption – cannot be an end in itself. Fourth, today’s capitalist systems vastly undervalue the welfare of unborn generations. For most of the era since the Industrial Revolution, this has not mattered, as the continuing boon of technological advance has trumped short-sighted policies. By and large, each generation has found itself significantly better off than the last. But, with the world’s population surging above seven billion, and harbingers of resource constraints becoming ever more apparent, there is no guarantee that this trajectory can be maintained. Financial crises are of course a fifth problem, perhaps the one that has provoked the most soul-searching of late. In the world of finance, continual technological innovation has not conspicuously reduced risks, and might well have magnified them. In principle, none of capitalism’s problems is insurmountable, and economists have offered a variety of market-based solutions. A high global price for carbon would induce firms and individuals to internalise the cost of their polluting activities. Tax systems can be designed to provide a greater measure of redistribution of income without necessarily involving crippling distortions, by minimising non-transparent tax expenditures and keeping marginal rates low. Effective pricing of health care, including the pricing of waiting times, could encourage a better balance between equality and efficiency. Financial systems could be better regulated, with stricter attention to excessive accumulations of debt. Will capitalism be a victim of its own success in producing massive wealth? For now, as fashionable as the topic of capitalism’s demise might be, **the possibility seems remote**. Nevertheless, as pollution, financial instability, health problems, and inequality continue to grow, and as political systems remain paralysed, capitalism’s future might not seem so secure in a few decades as it seems now.

#### Cap solves war—causes economic, not military competition

Gartzke 5—Former associate prof of pol sci, Columbia. Former associate prof of pol sci, USCD. PhD in International Relations, Formal/Quantitative Methods from U Iowa (Erik, “Future Depends on Capitalizing on Capitalist Peace,” 1 October 2005, http://www.cato.org/pub\_display.php?pub\_id=5133,)

With terrorism achieving "global reach" and conflict raging in Africa and the Middle East, you may have missed a startling fact - we are living in remarkably peaceable times. For six decades, developed nations have not fought each other. France and the United States may chafe, but the resulting conflict pitted french fries against "freedom fries," rather than French soldiers against U.S. "freedom fighters." Tony Blair and Jacques Chirac had a nasty spat over the EU, but the English aren't going to storm Calais any time soon. The present peace is unusual. Historically, powerful nations are the most war prone. The conventional wisdom is that democracy fosters peace but this claim fails scrutiny. It is based on statistical studies that show democracies typically don't fight other democracies. Yet, the same studies show that democratic nations go to war about as much as other nations overall. And more recent research makes clear that only the affluent democracies are less likely to fight each other. Poor democracies behave much like non-democracies when it comes to war and lesser forms of conflict. A more powerful explanation is emerging from newer, and older, empirical research - the "capitalist peace." As predicted by Montesquieu, Adam Smith, Norman Angell and others, nations with high levels of economic freedom not only fight each other less, they go to war less often, period. Economic freedom is a measure of the depth of free market institutions or, put another way, of capitalism. The "democratic peace" is a mirage created by the overlap between economic and political freedom. Democracy and economic freedom typically co-exist. Thus, if economic freedom causes peace, then statistically democracy will also appear to cause peace. When democracy and economic freedom are both included in a statistical model, the results reveal that economic freedom is considerably more potent in encouraging peace than democracy, 50 times more potent, in fact, according to my own research. Economic freedom is highly statistically significant (at the one-per-cent level). Democracy does not have a measurable impact, while nations with very low levels of economic freedom are 14 times more prone to conflict than those with very high levels. But, why would free markets cause peace? Capitalism is not only an immense generator of prosperity; it is also a revolutionary source of economic, social and political change. Wealth no longer arises primarily through land or control of natural resources. **New Kind of Wealth** Prosperity in modern societies is created by market competition and the efficient production that arises from it. This new kind of wealth is hard for nations to "steal" through conquest. In days of old, when the English did occasionally storm Calais, nobles dreamed of wealth and power in conquered lands, while visions of booty danced in the heads of peasant soldiers. Victory in war meant new property. In a free market economy, war destroys immense wealth for victor and loser alike. Even if capital stock is restored, efficient production requires property rights and free decisions by market participants that are difficult or impossible to co-ordinate to the victor's advantage. The Iraqi war, despite Iraq's immense oil wealth, will not be a money-maker for the United States. Economic freedom is not a guarantee of peace. Other factors, like ideology or the perceived need for self-defence, can still result in violence. But, where economic freedom has taken hold, it has made war less likely. Research on the capitalist peace has profound implications in today's world. Emerging democracies, which have not stabilized the institutions of economic freedom, appear to be at least as warlike - perhaps more so - than emerging dictatorships. Yet, the United States and other western nations are putting immense resources into democratization even in nations that lack functioning free markets. This is in part based on the faulty premise of a "democratic peace." It may also in part be due to public perception. Everyone approves of democracy, but "capitalism" is often a dirty word. However, in recent decades, an increasing number of people have rediscovered the economic virtues of the "invisible hand" of free markets. We now have an additional benefit of economic freedom - international peace. The actual presence of peace in much of the world sets this era apart from others. The empirical basis for optimistic claims - about either democracy or capitalism - can be tested and refined. The way forward is to capitalize on the capitalist peace, to deepen its roots and extend it to more countries through expanding markets, development, and a common sense of international purpose. The risk today is that faulty analysis and anti-market activists may distract the developed nations from this historic opportunity.

## 1ar

### AT: Water Conflict

#### Defense doesn’t apply – probability will increase

**Pearce 09** – environmental journalist and author of numerous books, including When the River Runs Dry: Water—The Defining Crisis of the 21st Century.

(Mark, May 14, “The Truth About Water Wars” <http://seedmagazine.com/content/article/the_truth_about_water_wars>) Jacome

Water, unlike land, is hard to “capture.” It flows. As Barnaby points out, countries have a lot of reasons for cooperating over water that flows between nations. And many do. She’s also right in acknowledging the importance of trade in thirsty products like food—often termed “virtual water.” There would have been many more wars in the Middle East in the past 30 years but for this trade, which keeps Egypt, Jordan, and others fed. But that approach will not always work. There are serious potential conflicts around the world where upstream countries can withhold water from arid downstream countries that need or want it. India and Pakistan constantly bicker over the Indus. How long will a fully functioning Iraqi state settle for Turkey controlling the flow of the Tigris and Euphrates with large dams? Meanwhile Egypt’s insistence on its prior right to the majority of the flow of the Nile is an unresolved tension afflicting a quarter of a continent. If wars arise over grievances, then water is a common source of grievances between nations. Israeli and Palestinian technocrats may cooperate over day-to-day water management, but that does not stop an absolute ban, imposed by Israel, on West Bank Palestinians sinking new wells to tap water beneath their feet. Water is a major grievance there. And as water shortages become more intense in much of the world over the coming decades, the potential for conflicts will grow. It is dangerous to “blame” a resource like water for wars. It can too easily become an excuse for failing to resolve conflicts. To “blame” water for genocide in Sudan is obscene. But to go to the other extreme and deny water as a potential factor in wars is equally foolish. Yes, management of water can become a meeting point for nations as well as a source of conflict. But many rivers and other sources of water that cross international boundaries are today not subject to treaties for sharing. That is dangerous. If we are to avoid water wars, there is an urgent need for more water diplomacy.

### AT: Trade

#### Trade does not solve war—there’s no correlation between trade and peace

**Martin, Mayer, and Thoenig 2008** (Phillipe, University of Paris 1 Pantheon—Sorbonne, Paris School of Economics, and Centre for Economic Policy Research; Thierry MAYER, University of Paris 1 Pantheon—Sorbonne, Paris School of Economics, CEPII, and Centre for Economic Policy Research, Mathias THOENIG, University of Geneva and Paris School of Economics, The Review of Economic Studies 75)

Does globalization pacify international relations? The “liberal” view in political science argues that increasing trade flows and the spread of free markets and democracy should limit the incentive to use military force in interstate relations. This vision, which can partly be traced back to Kant’s Essay on Perpetual Peace (1795), has been very influential: The main objective of the European trade integration process was to prevent the killing and destruction of the two World Wars from ever happening again.1 Figure 1 suggests2 however, that during the 1870–2001 period, the correlation between trade openness and military conflicts is not a clear cut one. The first era of globalization, at the end of the 19th century, was a period of rising trade openness and multiple military conflicts, culminating with World War I. Then, the interwar period was characterized by a simultaneous collapse of world trade and conflicts. After World War II, world trade increased rapidly, while the number of conflicts decreased (although the risk of a global conflict was obviously high). There is no clear evidence that the 1990s, during which trade flows increased dramatically, was a period of lower prevalence of military conflicts, even taking into account the increase in the number of sovereign states.

### Prolif Now

#### Nuke power expanding now

**Ferguson 12** [“Nuclear Power's Uncertain Future”, Charles D. Ferguson, President of the Federation of American Scientists, March 15, 2012, khirn]

On the opposite side of the world, China has about two dozen reactors under construction and many more planned. After the Fukushima accident, Beijing temporarily halted construction and said the right words about making sure safety is a top priority. But the real test will be its follow-through in training the legions of people who can safely operate and inspect these reactors. **The toughest challenge will be instilling a safety culture in which everyone at a nuclear plant can report safety violations** without fear of retribution. Although China’s rate of nuclear construction is impressive, the pace of its building coal plants as well as installing wind turbines and solar power is even more brisk. India also has grand nuclear-expansion plans, but antinuclear protesters have stymied completion of a Russian-built plant at Kandukulam as well as startup of new projects. In December 2004, the great tsunami that swept through the Indian Ocean raised concerns about the vulnerability of some Indian nuclear plants. In response to Fukushima, South Korea gave its regulatory agency more authority. While also vulnerable to earthquakes and tsunamis, the country has a severe shortage of indigenous sources of fuels, so its national policy has emphasized expanding nuclear power’s capacity to generate more than half of its electricity by 2030. Seoul has also developed a successful model for building nuclear plants, paying close attention to costs and project management. Its most recent plant was reportedly built within budget and on time. The Koreans are determined to demonstrate this model in the United Arab Emirates, which in December 2009 ordered four large reactors from South Korea at the price of about $20 billion. If successful, the UAE project could set the stage for competitive nuclear power. Jordan and Vietnam are already taking note of this model, but because they are much poorer countries than the UAE, they have been shopping around for massive loans to support their nuclear plans. It remains to be seen whether Jordan and Vietnam and other potential new nuclear entrants will end up like the Philippines, which recently turned its completed but nonoperational Bataan Nuclear Power Plant into a tourist destination. At least this plant is earning revenue.

### Elections – Mitt

#### Romney’s all talk---he’d work with Russia

Gasyuk 12 (Gasyuk, Rossiyskaya Gazeta’s Washington D.C. correspondent, 6-13, “Romney keeps the gloves off”, http://rbth.ru/articles/2012/06/13/romney\_keeps\_the\_gloves\_off\_15854.html)

Given the sharp disagreements between the United States and Russia on Syria, which is now careening toward civil war, Republicans will harshly criticize every attempt by Obama to further emphasize any progress in bilateral relations. “Some realism regarding U.S.-Russia relations would be constructive for the White House if it wants to avoid Republican attacks,” Simes told Russia Now. But this doesn’t mean that presumptive GOP nominee Mitt Romney, if elected, will transform his public anti-Russian statements into political practice. “I believe that most likely Governor Romney believes in the statements he made, but that does not mean that in practice this rhetoric will be his guide for action,” Simes said. “Many statements from the GOP candidates including those on foreign affairs surely have to be taken in the context of the political and electoral reality in the U.S.,” Aron said. “It is not only possible, but highly probable,” that Mitt Romney’s views on Russia will evolve if he is elected, Simes said. American political history is rife with examples of strategic U-turns that begin the morning after the inauguration balls. When Dwight Eisenhower ran for president, his advisers—such as the famous John Foster Dulles—spoke of Harry Truman’s “cowardly” policy of containment of the Soviet Union and called for the speedy liberation of Eastern Europe. However President Eisenhower instead started the process of normalizing relations through personal meetings with Nikita Khrushchev in 1955 and 1959. President Richard Nixon was viewed as a leading anti-Communist, but it was Nixon who found the way toward detente. Nixon made the first-ever trip by an American president to then-Communist Russia in 1972, but also opened the door to dialogue with Communist China. No one should be too surprised that Mitt Romney, if elected, might rethink his position. When needed for supply routes, Russia is no longer America’s “number one geopolitical foe.” As a president, many observers believe he would take a more realistic approach to handling bilateral ties.

### Elections – ME War

#### No Middle East war

**Maloney and Takeyh, 7** – \*senior fellow for Middle East Policy at the Saban Center for Middle East Studies at the Brookings Institution AND \*\*senior fellow for Middle East Studies at the Council on Foreign Relations (Susan and Ray, International Herald Tribune, 6/28, “Why the Iraq War Won't Engulf the Mideast”, http://www.brookings.edu/opinions/2007/0628iraq\_maloney.aspx)

Yet, the Saudis, Iranians, Jordanians, Syrians, and others are very unlikely to go to war either to protect their own sect or ethnic group or to prevent one country from gaining the upper hand in Iraq.

The reasons are fairly straightforward. First, Middle Eastern leaders, like politicians everywhere, are primarily interested in one thing: self-preservation. Committing forces to Iraq is an inherently risky proposition, which, if the conflict went badly, could threaten domestic political stability. Moreover, most Arab armies are geared toward regime protection rather than projecting power and thus have little capability for sending troops to Iraq.

Second, there is cause for concern about the so-called blowback scenario in which jihadis returning from Iraq destabilize their home countries, plunging the region into conflict.

Middle Eastern leaders are preparing for this possibility. Unlike in the 1990s, when Arab fighters in the Afghan jihad against the Soviet Union returned to Algeria, Egypt and Saudi Arabia and became a source of instability, Arab security services are being vigilant about who is coming in and going from their countries.

In the last month, the Saudi government has arrested approximately 200 people suspected of ties with militants. Riyadh is also building a 700 kilometer wall along part of its frontier with Iraq in order to keep militants out of the kingdom.

Finally, there is no precedent for Arab leaders to commit forces to conflicts in which they are not directly involved. The Iraqis and the Saudis did send small contingents to fight the Israelis in 1948 and 1967, but they were either ineffective or never made it. In the 1970s and 1980s, Arab countries other than Syria, which had a compelling interest in establishing its hegemony over Lebanon, never committed forces either to protect the Lebanese from the Israelis or from other Lebanese. The civil war in Lebanon was regarded as someone else's fight.

Indeed, this is the way many leaders view the current situation in Iraq. To Cairo, Amman and Riyadh, the situation in Iraq is worrisome, but in the end it is an Iraqi and American fight.

As far as Iranian mullahs are concerned, they have long preferred to press their interests through proxies as opposed to direct engagement. At a time when Tehran has access and influence over powerful Shiite militias, a massive cross-border incursion is both unlikely and unnecessary.

So Iraqis will remain locked in a sectarian and ethnic struggle that outside powers may abet, but will remain within the borders of Iraq.

The Middle East is a region both prone and accustomed to civil wars. But given its experience with ambiguous conflicts, the region has also developed an intuitive ability to contain its civil strife and prevent local conflicts from enveloping the entire Middle East.

# Round 6 Aff vs Texas GM

## 1ac v Texas GM

### 1AC Plan – with S-PRISM

#### The United States federal government should substantially increase loan guarantees for integral fast reactors using the S-PRISM design.

### Proliferation

#### Advantage 1: Prolif

#### Nuclear power construction is likely worldwide – Inaction on IFRs is killing US leadership and ability to influence prolif

**Shuster 11** [Joseph Shuster, founder of Minnesota Valley Engineering and Chemical Engineer, 9-8-2011, "Response to Draft Report From Obama’s Blue Ribbon Commission (BRC) on America’s Nuclear Future dated July 29, 2011," Beyond Fossil Fools]

Contrary to the commission’s declarations on the matter, the U.S. is in danger of losing its once ¶ strong nuclear leadership. As a result we would have less to say about how nuclear materials are ¶ to be managed in the world and that could expose the U.S. to some inconvenient if not downright ¶ dangerous consequences. China is now building a large pilot plant said to be identical to our ¶ successful EBR-II plant that proved the design of the IFR. Meanwhile in the U.S. after complete ¶ success, EBR II was shut down, not for technical reasons but for political reasons during the ¶ Clinton administration, a decision destined to be one of the worst in our nation’s history.¶ Much of the world is already committed to a nuclear future with some countries eagerly waiting ¶ to license the American version of Generation IV Fast Reactors—the IFR. We still have the best ¶ IFR technology in the world but have squandered much of our lead, partly by allowing a largely ¶ unqualified commission two years of useless deliberation. What we really did was give our ¶ competitors an additional two years to catch up.

#### IFR restores leadership on nuclear issues – key to contain proliferation

**Stanford 10** (Dr George S. Stanford, nuclear reactor physicist, retired from Argonne National Laboratory, "IFR FaD context – the need for U.S. implementation of the IFR," 2/18/10) http://bravenewclimate.com/2010/02/18/ifr-fad-context/-http://bravenewclimate.com/2010/02/18/ifr-fad-context/

ON THE NEED FOR U.S. IMPLEMENTATION OF THE INTEGRAL FAST REACTOR¶ The IFR ties into a very big picture — international stability, prevention of war, and avoiding “proliferation” (spread) of nuclear weapons.¶ – The need for energy is the basis of many wars, including the ones we are engaged in right now (Iraq and Afghanistan). If every nation had enough energy to give its people a decent standard of living, that reason for conflict would disappear.¶ – The only sustainable energy source that can provide the bulk of the energy needed is nuclear power.¶ – The current need is for more thermal reactors — the kind we now use.¶ – But for the longer term, to provide the growing amount of energy that will be needed to maintain civilization, the only proven way available today is with fast-reactor technology.¶ – The most promising fast-reactor type is the IFR – metal-fueled, sodium-cooled, with pyroprocessing to recycle its fuel.¶ – Nobody knows yet how much IFR plants would cost to build and operate. Without the commercial-scale demo of the IFR, along with rationalization of the licensing process, any claims about costs are simply hand-waving guesses.¶ \* \* \* \*¶ Background info on proliferation (of nuclear weapons). Please follow the reasoning carefully.¶ – Atomic bombs can be made with highly enriched uranium (90% U-235) or with good-quality plutonium (bomb designers want plutonium that is ~93% Pu-239).¶ – For fuel for an LWR, the uranium only has to be enriched to 3 or 4% U-235.¶ – To make a uranium bomb you don’t need a reactor — but you do need access to an enrichment facility or some other source of highly enriched uranium…¶ – Any kind of nuclear reactor can be used to make weapons-quality plutonium from uranium-238, but the uranium has to have been irradiated for only a very short period. In other words, nobody would try to make a plutonium weapon from ordinary spent fuel, because there are easier ways to get plutonium of much better quality.¶ – Plutonium for a weapon not only has to have good isotopic quality, it also has to be chemically uncontaminated. Thus the lightly irradiated fuel has to be processed to extract the plutonium in a chemically pure form. But mere possession of a reactor is not sufficient for a weapons capability — a facility using a chemical process called PUREX is also needed.¶ – Regardless of how many reactors a country has, it cannot have a weapons capability unless it has either the ability to enrich uranium or to do PUREX-type fuel reprocessing.¶ – Therefore, the spread of weapons capability will be strongly inhibited if the only enrichment and reprocessing facilities are in countries that already have a nuclear arsenal.¶ – But that can only happen if countries with reactors (and soon that will be most of the nations of the world) have absolutely ironclad guarantees that they can get the fuel they need even if they can’t make their own, regardless of how obnoxious their political actions might be.¶ – Such guarantees will have to be backed up by some sort of international arrangement, and that can only come to pass if there is effective leadership for the laborious international negotiations that will have to take place. (For a relevant discussion, see here)¶ – At present, the only nation that has a realistic potential to be such a leader is the United States.¶ – But a country cannot be such a leader in the political arena unless it is also in the technological forefront.¶ – The United States used to be the reactor-technology leader, but it abandoned that role in 1994 when it terminated the development of the IFR.¶ – Since then, other nations — China, India, Japan, South Korea, Russia, France — have proceeded to work on their own fast-reactor versions, which necessarily will involve instituting a fuel-processing capability.¶ – Thus the United States is being left behind, and is rapidly losing its ability to help assure that the global evolution of the technology of nuclear energy proceeds in a safe and orderly manner.¶ – But maybe it’s not too late yet. After all, the IFR is the fast-reactor technology with the post promise (for a variety of reasons), and is ready for a commercial-scale demonstration to settle some uncertainties about how to scale up the pyroprocess as needed, to establish better limits on the expected cost of production units, and to develop an appropriate, expeditious licensing process.¶ – Such a demo will require federal seed money. It’s time to get moving.

#### Transition to IFRs create a global proliferation resistant fuel cycle

**Stanford 10** (Dr George S. Stanford, nuclear reactor physicist, retired from Argonne National Laboratory, "Q%26A on Integral Fast Reactors – safe, abundant, non-polluting power," 9/18/10) [http://bravenewclimate.com/2010/09/18/ifr-fad-7/-http://bravenewclimate.com/2010/09/18/ifr-fad-7/](http://bravenewclimate.com/2010/09/18/ifr-fad-7/-http%3A//bravenewclimate.com/2010/09/18/ifr-fad-7/)

Thermal reactors with reprocessing would do at least a little better.¶ Recycling (it would be with the PUREX process, or an equivalent) could stretch the U-235 supply another few decades—but remember the consequences: growing stockpiles of plutonium, pure plutonium streams in the PUREX plants, and the creation of 100,000-year plutonium mines.¶ If you’re going to talk about “PUREX” and “plutonium mines” you should say what they are. First, what’s PUREX?¶ It’s a chemical process developed for the nuclear weapons program, to separate plutonium from everything else that comes out of a reactor. Weapons require very pure plutonium, and that’s what PUREX delivers. The pyroprocess used in the IFR is very different. It not only does not, it cannot, produce plutonium with the chemical purity needed for weapons.¶ Why do you keep referring to “chemical” purity?¶ Because chemical and isotopic quality are two different things. Plutonium for a weapon has to be pure chemically. Weapons designers also want good isotopic quality—that is, they want at least 93% of their plutonium to consist of the isotope Pu- 239. A chemical process does not separate isotopes.¶ I see. Now, what about the “plutonium mines?”¶ When spent fuel or vitrified reprocessing waste from thermal reactors is buried, the result is a concentrated geological deposit of plutonium. As its radioactivity decays, those deposits are sources of raw material for weapons, becoming increasingly attractive over the next 100,000 years and more (the half-life of Pu-239 being 24,000 years).¶ You listed, back at the beginning, some problems that the IFR would ameliorate. A lot of those problems are obviously related to proliferation of nuclear weapons.¶ Definitely. For instance, although thermal reactors consume more fuel than they produce, and thus are not called “breeders,” they inescapably are prolific breeders of plutonium, as I said. And that poses serious concerns about nuclear proliferation. And proliferation concerns are even greater when fuel from thermal reactors is recycled, since the PUREX method is used. IFRs have neither of those drawbacks.¶ Why does it seem that there is more proliferation-related concern about plutonium than about uranium? Can’t you make bombs from either?¶ Yes. The best isotopes for nuclear explosives are U-235, Pu- 239, and U-233. Only the first two of those, however, have been widely used. All the other actinide isotopes, if present in appreciable quantity, in one way or another complicate the design and construction of bombs and degrade their performance. Adequate isotopic purity is therefore important, and isotopic separation is much more difficult than chemical separation. Even so, with plutonium of almost any isotopic composition it is technically possible to make an explosive (although designers of military weapons demand plutonium that is at least 93% Pu-239), whereas if U-235 is sufficiently diluted with U-238 (which is easy to do and hard to undo), the mixture cannot be used for a bomb.¶ High-quality plutonium is the material of choice for a large and sophisticated nuclear arsenal, while highly enriched uranium would be one of the easier routes to a few crude nuclear explosives.¶ So why the emphasis on plutonium?¶ You’re asking me to read people’s minds, and I’m not good at that. Both uranium and plutonium are of proliferation concern.¶ Where is the best place for plutonium?¶ Where better than in a reactor plant—particularly an IFR facility, where there is never pure plutonium (except some, briefly, when it comes in from dismantled weapons), where the radioactivity levels are lethal, and where the operations are done remotely under an inert, smothering atmosphere? Once enough IFRs are deployed, there never will need to be plutonium outside a reactor plant—except for the then diminishing supply of plutonium left over from decades of thermal-reactor operation.¶ How does the IFR square with U.S. policy of discouraging plutonium production, reprocessing and use?¶ It is entirely consistent with the intent of that policy—to render plutonium as inaccessible for weapons use as possible. The wording of the policy, however, is now obsolete.¶ How so?¶ It was formulated before the IFR’s pyroprocessing and electrorefining technology was known—when “reprocessing” was synonymous with PUREX, which creates plutonium of the chemical purity needed for weapons. Since now there is a fuel cycle that promises to provide far-superior management of plutonium, the policy has been overtaken by events.¶ Why is the IFR better than PUREX? Doesn’t “recycling” mean separation of plutonium, regardless of the method?¶ No, not in the IFR—and that misunderstanding accounts for some of the opposition. The IFR’s pyroprocessing and electrorefining method is not capable of making plutonium that is pure enough for weapons. If a proliferator were to start with IFR material, he or she would have to employ an extra chemical separation step.¶ But there is plutonium in IFRs, along with other fissionable isotopes. Seems to me that a proliferator could take some of that and make a bomb.¶ Some people do say that, but they’re wrong, according to expert bomb designers at Livermore National Laboratory. They looked at the problem in detail, and concluded that plutonium-bearing material taken from anywhere in the IFR cycle was so ornery, because of inherent heat, radioactivity and spontaneous neutrons, that making a bomb with it without chemical separation of the plutonium would be essentially impossible—far, far harder than using today’s reactor-grade plutonium.¶ So? Why wouldn’t they use chemical separation?¶ First of all, they would need a PUREX-type plant—something that does not exist in the IFR cycle.¶ Second, the input material is so fiendishly radioactive that the processing facility would have to be more elaborate than any PUREX plant now in existence. The operations would have to be done entirely by remote control, behind heavy shielding, or the operators would die before getting the job done. The installation would cost millions, and would be very hard to conceal.¶ Third, a routine safeguards regime would readily spot any such modification to an IFR plant, or diversion of highly radioactive material beyond the plant.¶ Fourth, of all the ways there are to get plutonium—of any isotopic quality—this is probably the all-time, hands-down hardest.¶ The Long Term¶ Does the plutonium now existing and being produced by thermal reactors raise any proliferation concerns for the long term?¶ It certainly does. As I said earlier, burying the spent fuel from today’s thermal reactors creates geological deposits of plutonium whose desirability for weapons use is continually improving. Some 30 countries now have thermal-reactor programs, and the number will grow. To conceive of that many custodial programs being maintained effectively for that long is a challenge to the imagination. Since the IFR can consume plutonium, it can completely eliminate this long-term concern.¶ Are there other waste-disposal problems that could be lessened?¶ Yes. Some constituents of the waste from thermal reactors remain appreciably radioactive for thousands of years, leading to 10,000-year stability criteria for disposal sites. Waste disposal would be simpler if that time frame could be shortened. With IFR waste, the time of concern is less than 500 years.¶ What about a 1994 report by the National Academy of Sciences? The Washington Post said that the NAS report “denounces the idea of building new reactors to consume plutonium.”¶ That characterization of the report is a little strong, but it is true that the members of the NAS committee seem not to have been familiar with the plutonium-management potential of the IFR. They did, however, recognize the “plutonium mine” problem. They say (Executive Summary, p.3):¶ Because plutonium in spent fuel or glass logs incorporating high-level wastes still entails a risk of weapons use, and because the barrier to such use diminishes with time as the radioactivity decays, consideration of further steps to reduce the long-term proliferation risks of such materials is required, regardless of what option is chosen for [near-term] disposition of weapons plutonium. This global effort should include continued consideration of more proliferation-resistant nuclear fuel cycles, including concepts that might offer a long-term option for nearly complete elimination of the world’s plutonium stocks. The IFR, obviously, is just such a fuel cycle—a prime candidate for “continued consideration.”

#### That institutional support manages global nonproliferation

**Bengelsdorf and McGoldrick**, **07** [currently a Principal with the consulting firm of Bengelsdorf, McGoldrick, and Associates, held numerous senior positions in the U.S. government, including the Energy Department and its predecessor agencies, the State Department, and the U.S. Mission to the IAEA. Among his appointments, he served as the director of both key State and Energy Department offices that are concerned with international nuclear and nonproliferation affairs. Throughout his career, Mr. Bengelsdorf contributed significantly to the development and implementation of U.S. international fuel cycle and nonproliferation policies, having participated in several White House and National Security Council studies. He was involved in the negotiation of numerous bilateral and multilateral nuclear and nonproliferation agreements, including the development of full-scope IAEA safeguards (INFCIRC/153) to implement the Nuclear, THE U.S. DOMESTIC CIVIL NUCLEAR INFRASTRUCTURE AND U.S. NONPROLIFERATION POLICY A White Paper Presented by the American Council on Global Nuclear Competitiveness May 2007, <http://www.nuclearcompetitiveness.org/images/COUNCIL_WHITE_PAPER_Final.pdf>]

The health of the U.S. civil nuclear infrastructure can have an important bearing in a variety of ways on the ability of the United States to advance its nonproliferation objectives. During the Atoms for Peace Program and until the 1970s, the U.S. was the dominant supplier in the international commercial nuclear power market, and it exercised a strong leadership role in shaping the global nonproliferation regime. In those early days, the U.S. also had what was essentially a monopoly in the nuclear fuel supply market. This capability, among others, allowed the U.S. to promote the widespread acceptance of nonproliferation norms and restraints, including international safeguards and physical protection measures, and, most notably, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The United States concluded agreements for cooperation in peaceful nuclear energy with other states, which require strict safeguards, physical protection and other nonproliferation controls on their civil nuclear programs. Today due to its political, military and economic position in the world, the United States continues to exercise great weight in nonproliferation matters. However, the ability of the United States to promote its nonproliferation objectives through peaceful nuclear cooperation with other countries has declined**.** The fact that no new nuclear power plant orders have been placed in over three decades has led to erosion in the capabilities of the U.S. civil nuclear infrastructure. Moreover, during the same period, the U.S. share of the global nuclear market has declined significantly, and several other countries have launched their own nuclear power programs and have become major international suppliers in their own right. It is highly significant that all but one of the U.S. nuclear power plant vendors and nuclear fuel designers and manufactures for light water reactors have now been acquired by their non-U.S. based competitors. Thus, while the U.S. remains a participant in the international market for commercial nuclear power, it no longer enjoys a dominant role as it did four decades ago. To the extent that U.S. nuclear plant vendors and nuclear fuel designers 2 and manufacturers are able to reassert themselves on a technical and commercial basis, opportunities for U.S. influence with respect to nuclear nonproliferation can be expected to increase. However, the fact that there are other suppliers that can now provide plants and nuclear fuel technology and services on a competitive commercial basis suggests that the U.S. will have to work especially hard to maintain and, in some cases, rebuild its nuclear infrastructure, if it wishes to exercise its influence in international nuclear affairs. The influence of the United States internationally could be enhanced significantly if the U.S. is able to achieve success in its Nuclear Power 2010 program and place several new orders in the next decade and beyond. There is a clear upsurge of interest in nuclear power in various parts of the world. As a consequence, if the U.S. aspires to participate in these programs and to shape them in ways that are most conducive to nonproliferation, it will need to promote the health and viability of the American nuclear infrastructure. Perhaps more importantly, if it wishes to exert a positive influence in shaping the nonproliferation policies of other countries, it can do so more effectively by being an active supplier to and partner in the evolution of those programs. Concurrent with the prospective growth in the use of nuclear power, the global nonproliferation regime is facing some direct assaults that are unprecedented in nature. International confidence in the effectiveness of nuclear export controls was shaken by the disclosures of the nuclear operations of A.Q. Khan. These developments underscore the importance of maintaining the greatest integrity and effectiveness of the nuclear export conditions applied by the major suppliers. They also underscore the importance of the U.S. maintaining effective policies to achieve these objectives. Constructive U.S. influence will be best achieved to the extent that the U.S. is perceived as a major technological leader, supplier and partner in the field of nuclear technology. As the sole superpower, the U.S. will have considerable, on-going influence on the international nonproliferation regime, regardless of how active and successful it is in the nuclear export market. However, the erosion of the U.S. nuclear infrastructure has begun to weaken the ability of the U.S. to participate actively in the international nuclear market. If the U.S. becomes more dependent on foreign nuclear suppliers or if it leaves the international 3 nuclear market to other suppliers, the ability of the U.S. to influence nonproliferation policy will diminish. It is, therefore, essential that the United States have vibrant nuclear reactor, enrichment services, and spent fuel storage and disposal industries that can not only meet the needs of U.S. utilities but will also enable the United States to promote effective safeguards and other nonproliferation controls through close peaceful nuclear cooperation with other countries. U.S. nuclear exports can be used to influence other states’ nuclear programs through the nonproliferation commitments that the U.S. requires. The U.S. has so-called consent rights over the enrichment, reprocessing and alteration in form or content of the nuclear materials that it has provided to other countries, as well as to the nuclear materials that are produced from the nuclear materials and equipment that the U.S. has supplied. Further, the ability of the U.S. to develop improved and advanced nuclear technologies will depend on its ability to provide consistent and vigorous support for nuclear R&D programs that will enjoy solid bipartisan political support in order that they can be sustained from one administration to another. As the U.S. Government expends taxpayer funds on the Nuclear Power 2010 program, the Global Nuclear Energy Partnership, the Generation IV initiative and other programs, it should consider the benefit to the U.S. industrial base and to U.S. non-proliferation posture as criteria in project design and source selection where possible. Finally, the ability of the United States to resolve its own difficulties in managing its spent fuel and nuclear wastes will be crucial to maintaining the credibility of the U.S. nuclear power program and will be vital to implementing important new nonproliferation initiatives designed to discourage the spread of sensitive nuclear facilities to other countries.

#### We’re on the brink of rapid prolif – access to tech is inevitable and multilateral institutions fail

**CFR 12** [CFR 7-5-2012, "The Global Nuclear Nonproliferation Regime," Council on Foreign Relations]

Nuclear weapons proliferation, whether by state or nonstate actors, poses one of the greatest threats to international security today. Iran's apparent efforts to acquire nuclear weapons, what amounts to North Korean nuclear blackmail, and the revelation of the A.Q. Khan black market nuclear network all underscore the far-from-remote possibility that a terrorist group or a so-called rogue state will acquire weapons of mass destruction or materials for a dirty bomb.¶ The problem of nuclear proliferation is global, and any effective response must also be multilateral. Nine states (China, France, India, Israel, North Korea, Pakistan, Russia, the United Kingdom, and the United States) are known or believed to have nuclear weapons, and more than thirty others (including Japan, Germany, and South Korea) have the technological ability to quickly acquire them. Amid volatile energy costs, the accompanying push to expand nuclear energy, growing concerns about the environmental impact of fossil fuels, and the continued diffusion of scientific and technical knowledge, access to dual-use technologies seems destined to grow.¶ In the background, a nascent global consensus regarding the need for substantial nuclear arms reductions, if not complete nuclear disarmament, has increasingly taken shape. In April 2009, for instance, U.S. president Barack Obama reignited global nonproliferation efforts through a landmark speech in Prague. Subsequently, in September of the same year, the UN Security Council (UNSC) unanimously passed Resolution 1887, which called for accelerated efforts toward total nuclear disarmament. In February 2012, the number of states who have ratified the Comprehensive Test Ban Treaty increased to 157, heightening appeals to countries such as the United States, Israel, and Iran to follow suit.¶ Overall, the existing global nonproliferation regime is a highly developed example of international law. Yet, despite some notable successes, existing multilateral institutions have failed to prevent states such as India, Pakistan, and North Korea from "going nuclear," and seem equally ill-equipped to check Iran as well as potential threats from nonstate, terrorist groups. The current framework must be updated and reinforced if it is to effectively address today's proliferation threats, let alone pave the way for "the peace and security of a world without nuclear weapons."

#### Proliferation will be rapid and escalate – kills deterrence stability

**Horowitz, 2009**

[April, Michael, Department of Political Science, University of Pennsylvania, Philadelphia, “The Spread of Nuclear Weapons,” journal of conflict resolution, vol 53, no 2]

Learning as states gain experience with nuclear weapons is complicated. While to some extent, nuclear acquisition might provide information about resolve or capabil-  ities, it also generates uncertainty about the way an actual conflict would go—given  the new risk of nuclear escalation—and uncertainty about relative capabilities. Rapid proliferation may especially heighten uncertainty given the potential for reasonable  states to disagree at times about the quality of the capabilities each possesses.2 What  follows is an attempt to describe the implications of inexperience and incomplete  information on the behavior of nuclear states and their potential opponents over time.  Since it is impossible to detail all possible lines of argumentation and possible  responses, the following discussion is necessarily incomplete. This is a first step.  The acquisition of nuclear weapons increases the confidence of adopters in their  ability to impose costs in the case of a conflict and the expectations of likely costs if  war occurs by potential opponents. The key questions are whether nuclear states  learn over time about how to leverage nuclear weapons and the implications of that  learning, along with whether actions by nuclear states, over time, convey information  that leads to changes in the expectations of their behavior—shifts in uncertainty—  on the part of potential adversaries.  Learning to Leverage?  When a new state acquires nuclear weapons, how does it influence the way the  state behaves and how might that change over time? Although nuclear acquisition  might be orthogonal to a particular dispute, it might be related to a particular secu-  rity challenge, might signal revisionist aims with regard to an enduring dispute, or  might signal the desire to reinforce the status quo.  This section focuses on how acquiring nuclear weapons influences both the new  nuclear state and potential adversaries. In theory, system wide perceptions of nuclear  danger could allow new nuclear states to partially skip the early Cold War learning  process concerning the risks of nuclear war and enter a proliferated world more cog-  nizant of nuclear brinksmanship and bargaining than their predecessors. However,  each new nuclear state has to resolve its own particular civil–military issues surrounding operational control and plan its national strategy in light of its new capa-  bilities. Empirical research by Sagan (1993), Feaver (1992), and Blair (1993)  suggests that viewing the behavior of other states does not create the necessary tacit  knowledge; there is no substitute for experience when it comes to handling a nuclear  arsenal, even if experience itself cannot totally prevent accidents. Sagan contends  that civil–military instability in many likely new proliferators and pressures generated by the requirements to handle the responsibility of dealing with nuclear weapons  will skew decision making toward more offensive strategies (Sagan 1995). The ques-  tions surrounding Pakistan’s nuclear command and control suggest there is no magic  bullet when it comes to new nuclear powers’ making control and delegation decisions (Bowen and Wolvén 1999).  Sagan and others focus on inexperience on the part of new nuclear states as a key  behavioral driver. Inexperienced operators and the bureaucratic desire to “justify”  the costs spent developing nuclear weapons, combined with organizational biases  that may favor escalation to avoid decapitation—the “use it or lose it” mind-set—  may cause new nuclear states to adopt riskier launch postures, such as launch on  warning, or at least be perceived that way by other states (Blair 1993; Feaver 1992;  Sagan 1995).3  Acquiring nuclear weapons could alter state preferences and make states more  likely to escalate disputes once they start, given their new capabilities.4 But their  general lack of experience at leveraging their nuclear arsenal and effectively communicating nuclear threats could mean new nuclear states will be more likely to  select adversaries poorly and to find themselves in disputes with resolved adver-  saries that will reciprocate militarized challenges. The “nuclear experience” logic also suggests that more experienced nuclear states  should gain knowledge over time from nuclearized interactions that helps leaders  effectively identify the situations in which their nuclear arsenals are likely to make  a difference. Experienced nuclear states learn to select into cases in which their com-  parative advantage, nuclear weapons, is more likely to be effective, increasing the  probability that an adversary will not reciprocate.  Coming from a slightly different perspective, uncertainty about the consequences  of proliferation on the balance of power and the behavior of new nuclear states on  the part of their potential adversaries could also shape behavior in similar ways (Schelling 1966; Blainey 1988). While a stable and credible nuclear arsenal communicates clear information about the likely costs of conflict, in the short term,  nuclear proliferation is likely to increase uncertainty about the trajectory of a war,  the balance of power, and the preferences of the adopter.

#### Prolif is uneven – small arsenals don’t solve

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Conclusion¶ These findings have important implications for our understanding of nuclear deterrence and nuclear proliferation. First, they overturn a central belief in international relations and nuclear deterrence theory that the acquisition of even a minimal nuclear capability radically improves a regional state's ability to deter conventional conflict. The Cold War experience left it unclear as to what it precisely takes to deter conflict. The regional nuclear powers, however, which have had to face constrained decisions about how to allocate their deterrent power, illustrate that states must explicitly orient their nuclear forces to deter conventional conflict in order to expe- rience reduced attacks. The mere possession of nuclear weapons or even second- strike forces alone seems incapable of providing systematic deterrence against con- ventional attacks. There is no magical deterrent benefit against conventional conflict generated by existential, catalytic, or assured retaliatory postures.¶ To reap a significant deterrent effect against conventional conflict, regional states must—for better or worse—explicitly orient their nuclear forces to do so by adopting an asymmetric escalation posture. This posture undoubtedly carries with it other sig- nificant risks, such as severe command and control pressures and an attendant increase in the risk of inadvertent nuclear use (Sagan 1995). Furthermore, states with this posture have strong incentives to undermine the so-called nuclear tabooin order to keep their nuclear threats credible and may do so in ways that risk their own, or international, security (Tannenwald 2008). However, the findings in this article pro- vide a strong clue as to why states may be willing to run these risks: the significant deterrence benefit that this posture provides. All of this suggests that, theoretically, scholars should cease treating nuclear weapons states as equivalent. The fact that nuclear powers have adopted widely varying nuclear postures that have radically dif- ferent effects on international conflict calls for a revision to our thinking about how conflict can be deterred with nuclear weapons. ror policy makers, these findings suggest that, in addition to addressing a state s initial march toward nuclear weapons, more attention ought to be paid to how regional states operationalize their nuclear forces once they cross the threshold. If it is nuclear posture, not simply nuclear possession, that generates the patterns of regional conflict around a particular regional nuclear power, practitioners may need to reassess their expectations of the frequency and character of conflict in regions with nuclear powers. It also means that the march toward nuclearization, while important, is not the only process that can be targeted by nonproliferation efforts. Even after a regional power has obtained nuclear weapons, the international commu- nity may be able to shape a state's choice of posture. For example, the perceived availability of the United States as a patron state is critical to the selection of the cat- alytic posture. In other instances, there might also be good reasons and ways to push a regional power that is tempted to adopt an asymmetric escalation posture to adopt an assured retaliation posture instead, and minimize the emphasis it places on nuclear weapons for its day-to-day conventional defense (Sechser and Fuhrmann, n.d.).¶ The fundamental point is that nuclear postures matter. Nuclear weapons may deter, but they deter unequally**.** Moreover, both theoretically and empirically, it seems to take more to deter conventional conflict than is generally appreciated. This finding ought to influence how we think about the emerging nuclear landscape and about what it means for international conflict.¶

#### Quantitative analysis shows nuclearization increases conflict risk – South Asia example

Kapur in ‘7 (S. Paul, Associate Prof. Strategic Research Department @ Naval War College, “Dangerous Deterrent: Nuclear Weapons Proliferation and Conflict in South Asia”, p. 169-171)

In this study, I have sought to determine the effects that India's and Pakistan's acquisition of nuclear weapons has had on the South Asian security environment, focusing specifically on proliferation's impact on conventional military stability in the region. I first showed, through a quantitative analysis of the historical record, that a positive correlation exists between progressing nuclear proliferation and militarized disputes in the region. I explained this correlation between proliferation and conventional instability through case studies that closely examined Indo-Pakistani conventional military behavior during three periods of time during the proliferation process: a nonnuclear period from 1972 through 1989; a de facto nuclear period from 1990 through May 1998; and an overt nuclear period from June 1998 through 2002.

I argued that conventional conflict became more frequent and severe as proliferation progressed because of India's and Pakistan's territorial preferences and relative military capabilities. Pakistan's conventional military weakness vis-a-vis India and its revisionist preferences regarding the territorial division of Kashmir created strong incentives for conventional Pakistani aggression. This was the case for two reasons. First, nuclear weapons, by deterring all-out Indian conventional retaliation, enabled the Pakistanis physically to challenge territorial boundaries in Kashmir. Second, the danger of conventional hostilities escalating to the nuclear level drew international attention, potentially enabling Pakistan to secure outside mediation of the Kashmir dispute and to achieve a more favorable territorial settlement in Kashmir than it could have gotten by itself.

India's conventional strength and status quo preferences regarding the territorial division of Kashmir, by contrast, meant that the acquisition of nuclear weapons did not create direct incentives for India to become more conventionally aggressive or to alter its military behavior in any significant manner. This was the case because the Indian government was largely satisfied on the issue of Kashmir and did not seek to alter territorial boundaries in the region. Therefore, the Indians had little motivation to engage in cross-border aggression, with or without nuclear weapons. In addition, because India was conventionally stronger than Pakistan, the acquisition of nuclear weapons did not enable the Indians to undertake any aggression that they could not have launched earlier with purely conventional forces. Thus, we saw increasingly aggressive Pakistani behavior as proliferation progressed, while nuclear weapons did not have much direct impact on Indian behavior—though, by encouraging Pakistani adventurism, nuclear weapons did drive India to adopt increasingly forceful approaches to dealing with Pakistan.

In the case studies, I demonstrated this logic's impact on the Indo-Pakistani security relationship since 1972. Specifically, I showed that the first, nonnuclear time period from 1972 through 1989 was relatively peaceful, with 186 of 216 months completely free of militarized conflict. I argued that this was the case for two main reasons. First, the Indian government was satisfied with the territorial division of the subcontinent after its victory in the Bangladesh War and had no reason to undertake any aggression against Pakistan. Second, although Pakistani leaders were dissatisfied with the division of the subcontinent following the Bangladesh War, in its weakened state, Pakistan could not risk action to alter territorial boundaries and thus generally avoided confrontation with India.

I showed that the second, de facto nuclear time period was considerably more volatile than the nonnuclear period, with militarized disputes occurring over five times more frequently than they did from 1972 through 1989. I argued that this decreased stability resulted largely from Pakistan's support for the anti-Indian insurgency in Kashmir. This involvement in the insurgency was encouraged by Pakistan's de facto nuclear weapons capacity, which enabled Pakistan to pursue a low-intensity conflict strategy in Kashmir while insulated from all-out Indian conventional retaliation.

I showed that during the third, overt nuclear time period, the frequency of militarized Indo-Pakistani disputes increased nearly 14 percent beyond what it had been during the de facto nuclear period. Additionally, conflict during the overt period escalated above the hostility levels reached in either the nonnuclear or the de facto nuclear periods, crossing the threshold of outright war in 1999. I explained that the overt acquisition of nuclear weapons gave the Pakistan government even greater confidence in its ability to alter the territorial status quo in Kashmir through conventional aggression without fear of full-scale Indian retaliation. Furthermore, Pakistani leaders believed that conflict between two openly nuclear powers would attract international attention to and mediation of the Kashmir dispute, possibly resulting in a settlement superior to any that Pakistan could have secured on its own.

The case studies thus explained the positive correlation between progressing nuclear proliferation and increased conventional conflict identified in the first section of this study and made clear the importance of territorial preferences and military capabilities to determining nuclear proliferation's impact on the behavior of new nuclear states. In the sections that follow, I discuss the theoretical and policy implications of these findings.

#### Risks human extinction

Krieger, ‘9

[David, Pres. Nuclear Age Peace Foundation and Councilor – World Future Council, “Still Loving the Bomb After All These Years”, 9-4, https://www.wagingpeace.org/articles/2009/09/04\_krieger\_newsweek\_response.php?krieger]

Jonathan Tepperman’s article in the September 7, 2009 issue of Newsweek, “Why Obama Should Learn to Love the Bomb,” provides a novel but frivolous argument that nuclear weapons “may not, in fact, make the world more dangerous….” Rather, in Tepperman’s world, “The bomb may actually make us safer.” Tepperman shares this world with Kenneth Waltz, a University of California professor emeritus of political science, who Tepperman describes as “the leading ‘nuclear optimist.’” Waltz expresses his optimism in this way: “We’ve now had 64 years of experience since Hiroshima. It’s striking and against all historical precedent that for that substantial period, there has not been any war among nuclear states.” Actually, there were a number of proxy wars between nuclear weapons states, such as those in Korea, Vietnam and Afghanistan, and some near disasters, the most notable being the 1962 Cuban Missile Crisis. Waltz’s logic is akin to observing a man falling from a high rise building, and noting that he had already fallen for 64 floors without anything bad happening to him, and concluding that so far it looked so good that others should try it. Dangerous logic! Tepperman builds upon Waltz’s logic, and concludes “that all states are rational,” even though their leaders may have a lot of bad qualities, including being “stupid, petty, venal, even evil….” He asks us to trust that rationality will always prevail when there is a risk of nuclear retaliation, because these weapons make “the costs of war obvious, inevitable, and unacceptable.” Actually, he is asking us to do more than trust in the rationality of leaders; he is asking us to gamble the future on this proposition. “The iron logic of deterrence and mutually assured destruction is so compelling,” Tepperman argues, “it’s led to what’s known as the nuclear peace….” But if this is a peace worthy of the name, which it isn’t, it certainly is not one on which to risk the future of civilization. One irrational leader with control over a nuclear arsenal could start a nuclear conflagration, resulting in a global Hiroshima. Tepperman celebrates “the iron logic of deterrence,” but deterrence is a theory that is far from rooted in “iron logic.” It is a theory based upon threats that must be effectively communicated and believed. Leaders of Country A with nuclear weapons must communicate to other countries (B, C, etc.) the conditions under which A will retaliate with nuclear weapons. The leaders of the other countries must understand and believe the threat from Country A will, in fact, be carried out. The longer that nuclear weapons are not used, the more other countries may come to believe that they can challenge Country A with impunity from nuclear retaliation. The more that Country A bullies other countries, the greater the incentive for these countries to develop their own nuclear arsenals. Deterrence is unstable and therefore precarious. Most of the countries in the world reject the argument, made most prominently by Kenneth Waltz, that the spread of nuclear weapons makes the world safer. These countries joined together in the Nuclear Non-Proliferation Treaty (NPT) to prevent the spread of nuclear weapons, but they never agreed to maintain indefinitely a system of nuclear apartheid in which some states possess nuclear weapons and others are prohibited from doing so. The principal bargain of the NPT requires the five NPT nuclear weapons states (US, Russia, UK, France and China) to engage in good faith negotiations for nuclear disarmament, and the International Court of Justice interpreted this to mean complete nuclear disarmament in all its aspects. Tepperman seems to be arguing that seeking to prevent the proliferation of nuclear weapons is bad policy, and that nuclear weapons, because of their threat, make efforts at non-proliferation unnecessary and even unwise. If some additional states, including Iran, developed nuclear arsenals, he concludes that wouldn’t be so bad “given the way that bombs tend to mellow behavior.” Those who oppose Tepperman’s favorable disposition toward the bomb, he refers to as “nuclear pessimists.” These would be the people, and I would certainly be one of them, who see nuclear weapons as presenting an urgent danger to our security, our species and our future. Tepperman finds that when viewed from his “nuclear optimist” perspective, “nuclear weapons start to seem a lot less frightening.” “Nuclear peace,” he tells us, “rests on a scary bargain: you accept a small chance that something extremely bad will happen in exchange for a much bigger chance that something very bad – conventional war – won’t happen.” But the “extremely bad” thing he asks us to accept is the end of the human species. Yes, that would be serious. He also doesn’t make the case that in a world without nuclear weapons, the prospects of conventional war would increase dramatically. After all, it is only an unproven supposition that nuclear weapons have prevented wars, or would do so in the future. We have certainly come far too close to the precipice of catastrophic nuclear war. As an ultimate celebration of the faulty logic of deterrence, Tepperman calls for providing any nuclear weapons state with a “survivable second strike option.” Thus, he not only favors nuclear weapons, but finds the security of these weapons to trump human security. Presumably he would have President Obama providing new and secure nuclear weapons to North Korea, Pakistan and any other nuclear weapons states that come along so that they will feel secure enough not to use their weapons in a first-strike attack. Do we really want to bet the human future that Kim Jong-Il and his successors are more rational than Mr. Tepperman?

### Warming

#### Warming is real and anthropogenic – carbon dioxide increase, polar ice records, melting glaciers, sea level rise

**Prothero 12** [Donald R. Prothero, Professor of Geology at Occidental College and Lecturer in Geobiology at the California Institute of Technology, 3-1-2012, "How We Know Global Warming is Real and Human Caused," Skeptic, vol 17 no 2, EBSCO]

Converging Lines of Evidence¶ How do we know that global warming is real and primarily human caused? There are numerous lines of evidence that converge toward this conclusion.¶ 1. Carbon Dioxide Increase.¶ Carbon dioxide in our atmosphere has increased at an unprecedented rate in the past 200 years. Not one data set collected over a long enough span of time shows otherwise. Mann et al. (1999) compiled the past 900 years' worth of temperature data from tree rings, ice cores, corals, and direct measurements in the past few centuries, and the sudden increase of temperature of the past century stands out like a sore thumb. This famous graph is now known as the "hockey stick" because it is long and straight through most of its length, then bends sharply upward at the end like the blade of a hockey stick. Other graphs show that climate was very stable within a narrow range of variation through the past 1000, 2000, or even 10,000 years since the end of the last Ice Age. There were minor warming events during the Climatic Optimum about 7000 years ago, the Medieval Warm Period, and the slight cooling of the Little Ice Age in die 1700s and 1800s. But the magnitude and rapidity of the warming represented by the last 200 years is simply unmatched in all of human history. More revealing, die timing of this warming coincides with the Industrial Revolution, when humans first began massive deforestation and released carbon dioxide into the atmosphere by burning an unprecedented amount of coal, gas, and oil.¶ 2. Melting Polar Ice Caps.¶ The polar icecaps are thinning and breaking up at an alarming rate. In 2000, my former graduate advisor Malcolm McKenna was one of the first humans to fly over the North Pole in summer time and see no ice, just open water. The Arctic ice cap has been frozen solid for at least the past 3 million years (and maybe longer),4 but now the entire ice sheet is breaking up so fast that by 2030 (and possibly sooner) less than half of the Arctic will be ice covered in the summer.5 As one can see from watching the news, this is an ecological disaster for everything that lives up there, from the polar bears to the seals and walruses to the animals they feed upon, to the 4 million people whose world is melting beneath their feet. The Antarctic is thawing even faster. In February-March 2002, the Larsen B ice shelf - over 3000 square km (the size of Rhode Island) and 220 m (700 feet) thick- broke up in just a few months, a story typical of nearly all the ice shelves in Antarctica. The Larsen B shelf had survived all the previous ice ages and interglacial warming episodes over the past 3 million years, and even the warmest periods of the last 10,000 years- yet it and nearly all the other thick ice sheets on the Arctic, Greenland, and Antarctic are vanishing at a rate never before seen in geologic history.¶ 3. Melting Glaciers.¶ Glaciers are all retreating at the highest rates ever documented. Many of those glaciers, along with snow melt, especially in the Himalayas, Andes, Alps, and Sierras, provide most of the freshwater that the populations below the mountains depend upon - yet this fresh water supply is vanishing. Just think about the percentage of world's population in southern Asia (especially India) that depend on Himalayan snowmelt for their fresh water. The implications are staggering. The permafrost that once remained solidly frozen even in the summer has now Üiawed, damaging the Inuit villages on the Arctic coast and threatening all our pipelines to die North Slope of Alaska. This is catastrophic not only for life on the permafrost, but as it thaws, the permafrost releases huge amounts of greenhouse gases which are one of the major contributors to global warming. Not only is the ice vanishing, but we have seen record heat waves over and over again, killing thousands of people, as each year joins the list of the hottest years on record. (2010 just topped that list as the hottest year, surpassing the previous record in 2009, and we shall know about 2011 soon enough). Natural animal and plant populations are being devastated all over the globe as their environments change.6 Many animals respond by moving their ranges to formerly cold climates, so now places that once did not have to worry about disease-bearing mosquitoes are infested as the climate warms and allows them to breed further north.¶ 4. Sea Level Rise.¶ All that melted ice eventually ends up in the ocean, causing sea levels to rise, as it has many times in the geologic past. At present, the sea level is rising about 3-4 mm per year, more than ten times the rate of 0.10.2 mm/year that has occurred over the past 3000 years. Geological data show Üiat ttie sea level was virtually unchanged over the past 10,000 years since the present interglacial began. A few mm here or there doesn't impress people, until you consider that the rate is accelerating and that most scientists predict sea levels will rise 80-130 cm in just the next century. A sea level rise of 1.3 m (almost 4 feet) would drown many of the world's low-elevation cities, such as Venice and New Orleans, and low-lying countries such as the Netherlands or Bangladesh. A number of tiny island nations such as Vanuatu and the Maldives, which barely poke out above the ocean now, are already vanishing beneath the waves. Eventually their entire population will have to move someplace else.7 Even a small sea level rise might not drown all these areas, but they are much more vulnerable to the large waves of a storm surge (as happened with Hurricane Katrina), which could do much more damage than sea level rise alone. If sea level rose by 6 m (20 feet), most of die world's coastal plains and low-lying areas (such as the Louisiana bayous, Florida, and most of the world's river deltas) would be drowned.¶ Most of the world's population lives in lowelevation coastal cities such as New York, Boston, Philadelphia, Baltimore, Washington, D.C., Miami, and Shanghai. All of those cities would be partially or completely under water with such a sea level rise. If all the glacial ice caps melted completely (as they have several times before during past greenhouse episodes in the geologic past), sea level would rise by 65 m (215 feet)! The entire Mississippi Valley would flood, so you could dock an ocean liner in Cairo, Illinois. Such a sea level rise would drown nearly every coastal region under hundreds of feet of water, and inundate New York City, London and Paris. All that would remain would be the tall landmarks such as the Empire State Building, Big Ben, and the Eiffel Tower. You could tie your boats to these pinnacles, but the rest of these drowned cities would lie deep underwater.

#### Warming is real and causes mass extinction

**Morgan 9 –** Professor of Current Affairs @ Hankuk University of Foreign Studies, South Korea(Dennis Ray, “World on fire: two scenarios of the destruction of human civilization and possible extinction of the human race”, Futures, Volume 41, Issue 10, December 2009, Pages 683-693, ScienceDirect)

As horrifying as the scenario of human extinction by sudden, fast-burning nuclear fire may seem, the one consolation is that this future can be avoided within a relatively short period of time if responsible world leaders change Cold War thinking to move away from aggressive wars over natural resources and towards the eventual dismantlement of most if not all nuclear weapons. On the other hand, another scenario of human extinction by fire is one that may not so easily be reversed within a short period of time because it is not a fast-burning fire; rather, a slow burning fire is gradually heating up the planet as industrial civilization progresses and develops globally. This gradual process and course is long-lasting; thus it cannot easily be changed, even if responsible world leaders change their thinking about ‘‘progress’’ and industrial development based on the burning of fossil fuels. The way that global warming will impact humanity in the future has often been depicted through the analogy of the proverbial frog in a pot of water who does not realize that the temperature of the water is gradually rising. Instead of trying to escape, the frog tries to adjust to the gradual temperature change; finally, the heat of the water sneaks up on it until it is debilitated. Though it finally realizes its predicament and attempts to escape, it is too late; its feeble attempt is to no avail— and the frog dies. Whether this fable can actually be applied to frogs in heated water or not is irrelevant; it still serves as a comparable scenario of how the slow burning fire of global warming may eventually lead to a runaway condition and take humanity by surprise. Unfortunately, by the time the politicians finally all agree with the scientific consensus that global warming is indeed human caused, its development could be too advanced to arrest; the poor frog has become too weak and enfeebled to get himself out of hot water. The Intergovernmental Panel of Climate Change (IPCC) was established in 1988 by the WorldMeteorological Organization (WMO) and the United Nations Environmental Programme to ‘‘assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of humaninduced climate change, its potential impacts and options for adaptation and mitigation.’’[16]. Since then, it has given assessments and reports every six or seven years. Thus far, it has given four assessments.13 With all prior assessments came attacks fromsome parts of the scientific community, especially by industry scientists, to attempt to prove that the theory had no basis in planetary history and present-day reality; nevertheless, as more andmore research continually provided concrete and empirical evidence to confirm the global warming hypothesis, that it is indeed human-caused, mostly due to the burning of fossil fuels, the scientific consensus grew stronger that human induced global warming is verifiable. As a matter of fact, according to Bill McKibben [17], 12 years of ‘‘impressive scientific research’’ strongly confirms the 1995 report ‘‘that humans had grown so large in numbers and especially in appetite for energy that they were now damaging the most basic of the earth’s systems—the balance between incoming and outgoing solar energy’’; ‘‘. . . their findings have essentially been complementary to the 1995 report – a constant strengthening of the simple basic truth that humans were burning too much fossil fuel.’’ [17]. Indeed, 12 years later, the 2007 report not only confirms global warming, with a stronger scientific consensus that the slow burn is ‘‘very likely’’ human caused, but it also finds that the ‘‘amount of carbon in the atmosphere is now increasing at a faster rate even than before’’ and the temperature increases would be ‘‘considerably higher than they have been so far were it not for the blanket of soot and other pollution that is temporarily helping to cool the planet.’’ [17]. Furthermore, almost ‘‘everything frozen on earth is melting. Heavy rainfalls are becoming more common since the air is warmer and therefore holds more water than cold air, and ‘cold days, cold nights and frost have become less frequent, while hot days, hot nights, and heat waves have become more frequent.’’ [17]. Unless drastic action is taken soon, the average global temperature is predicted to rise about 5 degrees this century, but it could rise as much as 8 degrees. As has already been evidenced in recent years, the rise in global temperature is melting the Arctic sheets. This runaway polar melting will inflict great damage upon coastal areas, which could be much greater than what has been previously forecasted. However, what is missing in the IPCC report, as dire as it may seem, is sufficient emphasis on the less likely but still plausible worst case scenarios, which could prove to have the most devastating, catastrophic consequences for the long-term future of human civilization. In other words, the IPCC report places too much emphasis on a linear progression that does not take sufficient account of the dynamics of systems theory, which leads to a fundamentally different premise regarding the relationship between industrial civilization and nature. As a matter of fact, as early as the 1950s, Hannah Arendt [18] observed this radical shift of emphasis in the human-nature relationship, which starkly contrasts with previous times because the very distinction between nature and man as ‘‘Homo faber’’ has become blurred, as man no longer merely takes from nature what is needed for fabrication; instead, he now acts into nature to augment and transform natural processes, which are then directed into the evolution of human civilization itself such that we become a part of the very processes that we make. The more human civilization becomes an integral part of this dynamic system, the more difficult it becomes to extricate ourselves from it. As Arendt pointed out, this dynamism is dangerous because of its unpredictability. Acting into nature to transform natural processes brings about an . . . endless new change of happenings whose eventual outcome the actor is entirely incapable of knowing or controlling beforehand. The moment we started natural processes of our own - and the splitting of the atom is precisely such a man-made natural process -we not only increased our power over nature, or became more aggressive in our dealings with the given forces of the earth, but for the first time have taken nature into the human world as such and obliterated the defensive boundaries between natural elements and the human artifice by which all previous civilizations were hedged in’’ [18]. So, in as much as we act into nature, we carry our own unpredictability into our world; thus, Nature can no longer be thought of as having absolute or iron-clad laws. We no longer know what the laws of nature are because the unpredictability of Nature increases in proportion to the degree by which industrial civilization injects its own processes into it; through selfcreated, dynamic, transformative processes, we carry human unpredictability into the future with a precarious recklessness that may indeed end in human catastrophe or extinction, for elemental forces that we have yet to understand may be unleashed upon us by the very environment that we experiment with. Nature may yet have her revenge and the last word, as the Earth and its delicate ecosystems, environment, and atmosphere reach a tipping point, which could turn out to be a point of no return. This is exactly the conclusion reached by the scientist, inventor, and author, James Lovelock. The creator of the wellknown yet controversial Gaia Theory, Lovelock has recently written that it may be already too late for humanity to change course since climate centers around the world, . . . which are the equivalent of the pathology lab of a hospital, have reported the Earth’s physical condition, and the climate specialists see it as seriously ill, and soon to pass into a morbid fever that may last as long as 100,000 years. I have to tell you, as members of the Earth’s family and an intimate part of it, that you and especially civilisation are in grave danger. It was ill luck that we started polluting at a time when the sun is too hot for comfort. We have given Gaia a fever and soon her condition will worsen to a state like a coma. She has been there before and recovered, but it took more than 100,000 years. We are responsible and will suffer the consequences: as the century progresses, the temperature will rise 8 degrees centigrade in temperate regions and 5 degrees in the tropics. Much of the tropical land mass will become scrub and desert, and will no longer serve for regulation; this adds to the 40 per cent of the Earth’s surface we have depleted to feed ourselves. . . . Curiously, aerosol pollution of the northern hemisphere reduces global warming by reflecting sunlight back to space. This ‘global dimming’ is transient and could disappear in a few days like the smoke that it is, leaving us fully exposed to the heat of the global greenhouse. We are in a fool’s climate, accidentally kept cool by smoke, and before this century is over billions of us will die and the few breeding pairs of people that survive will be in the Arctic where the climate remains tolerable. [19] Moreover, Lovelock states that the task of trying to correct our course is hopelessly impossible, for we are not in charge. It is foolish and arrogant to think that we can regulate the atmosphere, oceans and land surface in order to maintain the conditions right for life. It is as impossible as trying to regulate your own temperature and the composition of your blood, for those with ‘‘failing kidneys know the never-ending daily difficulty of adjusting water, salt and protein intake. The technological fix of dialysis helps, but is no replacement for living healthy kidneys’’ [19]. Lovelock concludes his analysis on the fate of human civilization and Gaia by saying that we will do ‘‘our best to survive, but sadly I cannot see the United States or the emerging economies of China and India cutting back in time, and they are the main source of emissions. The worst will happen and survivors will have to adapt to a hell of a climate’’ [19]. Lovelock’s forecast for climate change is based on a systems dynamics analysis of the interaction between humancreated processes and natural processes. It is a multidimensional model that appropriately reflects the dynamism of industrial civilization responsible for climate change. For one thing, it takes into account positive feedback loops that lead to ‘‘runaway’’ conditions. This mode of analysis is consistent  with recent research on how ecosystems suddenly disappear. A 2001 article in Nature, based on a scientific study by an international consortium, reported that changes in ecosystems are not just gradual but are often sudden and catastrophic [20]. Thus, a scientific consensus is emerging (after repeated studies of ecological change) that ‘‘stressed ecosystems, given the right nudge, are capable of slipping rapidly from a seemingly steady state to something entirely different,’’ according to Stephen Carpenter, a limnologist at the University of Wisconsin-Madison (who is also a co-author of the report). Carpenter continues, ‘‘We realize that there is a common pattern we’re seeing in ecosystems around the world, . . . Gradual changes in vulnerability accumulate and eventually you get a shock to the system - a flood or a drought - and, boom, you’re over into another regime. It becomes a self-sustaining collapse.’’ [20]. If ecosystems are in fact mini-models of the system of the Earth, as Lovelock maintains, then we can expect the same kind of behavior. As Jonathon Foley, a UW-Madison climatologist and another co-author of the Nature report, puts it, ‘‘Nature isn’t linear. Sometimes you can push on a system and push on a system and, finally, you have the straw that breaks the camel’s back.’’ Also, once the ‘‘flip’’ occurs, as Foley maintains, then the catastrophic change is ‘‘irreversible.’’ [20]. When we expand this analysis of ecosystems to the Earth itself, it’s frightening. What could be the final push on a stressed system that could ‘‘break the camel’s back?’’ Recently, another factor has been discovered in some areas of the arctic regions, which will surely compound the problem of global ‘‘heating’’ (as Lovelock calls it) in unpredictable and perhaps catastrophic ways. This disturbing development, also reported in Nature, concerns the permafrost that has locked up who knows how many tons of the greenhouse gasses, methane and carbon dioxide. Scientists are particularly worried about permafrost because, as it thaws, it releases these gases into the atmosphere, thus, contributing and accelerating global heating. It is a vicious positive feedback loop that compounds the prognosis of global warming in ways that could very well prove to be the tipping point of no return. Seth Borenstein of the Associated Press describes this disturbing positive feedback loop of permafrost greenhouse gasses, as when warming ‘‘. already under way thaws permafrost, soil that has been continuously frozen for thousands of years. Thawed permafrost releases methane and carbon dioxide. Those gases reach the atmosphere and help trap heat on Earth in the greenhouse effect. The trapped heat thaws more permafrost and so on.’’ [21]. The significance and severity of this problem cannot be understated since scientists have discovered that ‘‘the amount of carbon trapped in this type of permafrost called ‘‘yedoma’’ is much more prevalent than originally thought and may be 100 times [my emphasis] the amount of carbon released into the air each year by the burning of fossil fuels’’ [21]. Of course, it won’t come out all at once, at least by time as we commonly reckon it, but in terms of geological time, the ‘‘several decades’’ that scientists say it will probably take to come out can just as well be considered ‘‘all at once.’’ Surely, within the next 100 years, much of the world we live in will be quite hot and may be unlivable, as Lovelock has predicted. Professor Ted Schuur, a professor of ecosystem ecology at the University of Florida and co-author of the study that appeared in Science, describes it as a ‘‘slow motion time bomb.’’ [21]. Permafrost under lakes will be released as methane while that which is under dry ground will be released as carbon dioxide. Scientists aren’t sure which is worse. Whereas methane is a much more powerful agent to trap heat, it only lasts for about 10 years before it dissipates into carbon dioxide or other chemicals. The less powerful heat-trapping agent, carbon dioxide, lasts for 100 years [21]. Both of the greenhouse gasses present in permafrost represent a global dilemma and challenge that compounds the effects of global warming and runaway climate change. The scary thing about it, as one researcher put it, is that there are ‘‘lots of mechanisms that tend to be self-perpetuating and relatively few that tend to shut it off’’ [21].14 In an accompanying AP article, Katey Walters of the University of Alaska at Fairbanks describes the effects as ‘‘huge’’ and, unless we have a ‘‘major cooling,’’ - unstoppable [22]. Also, there’s so much more that has not even been discovered yet, she writes: ‘‘It’s coming out a lot and there’s a lot more to come out.’’ [22]. 4. Is it the end of human civilization and possible extinction of humankind? What Jonathon Schell wrote concerning death by the fire of nuclear holocaust also applies to the slow burning death of global warming: Once we learn that a holocaust might lead to extinction**, we have no right to gamble**, because if we lose, the game will be over, and neither we nor anyone else will ever get another chance. Therefore, although, scientifically speaking, there is all the difference in the world between the mere possibility that a holocaust will bring about extinction and the certainty of it, morally they are the same, and we have no choice but to address the issue of nuclear weapons as though we knew for a certainty that their use would put an end to our species [23].15 When we consider that beyond the horror of nuclear war, another horror is set into motion to interact with the subsequent nuclear winter to produce a poisonous and super heated planet, the chances of human survival seem even smaller. Who knows, even if some small remnant does manage to survive, what the poisonous environmental conditions would have on human evolution in the future. A remnant of mutated, sub-human creatures might survive such harsh conditions, but for all purposes, human civilization has been destroyed, and the question concerning human extinction becomes moot. Thus, **we have no other choice but to consider the finality of it all**, as Schell does: ‘‘Death lies at the core of each person’s private existence, but part of death’s meaning is to be found in the fact that it occurs in a biological and social world that survives.’’ [23].16 But what if the world itself were to perish, Schell asks. Would not it bring about a sort of ‘‘second death’’ – the death of the species – a possibility that the vast majority of the human race is in denial about? Talbot writes in the review of Schell’s book that it is not only the ‘‘death of the species, not just of the earth’s population on doomsday, but of countless unborn generations. They would be spared literal death but would nonetheless be victims . . .’’ [23]. That is the ‘‘second death’’ of humanity – the horrifying, unthinkable prospect that there are no prospects – that there will be no future. In the second chapter of Schell’s book, he writes that since we have not made a positive decision to exterminate ourselves but instead have ‘‘chosen to live on the edge of extinction, periodically lunging toward the abyss only to draw back at the last second, our situation is one of uncertainty and nervous insecurity rather than of absolute hopelessness.’’ [23].17 In other words, the fate of the Earth and its inhabitants has not yet been determined. Yet time is not on our side. Will we relinquish the fire and our use of it to dominate the Earth and each other, or will we continue to gamble with our future at this game of Russian roulette while **time** increasingly **stacks the cards against** our chances of **survival**?

#### The IFR is the only way to reduce coal emissions sufficiently to avert the worst climate disasters

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To prevent a climate disaster, we must eliminate virtually all coal plant emissions worldwide in 25 years. The best way and, for all practical purposes, the only way to get all countries off of coal is not with coercion; it is to make them want to replace their coal burners by giving them a plug-compatible technology that is less expensive. The IFR can do this. It is plug-compatible with the burners in a coal plant (see Nuclear Power: Going Fast). No other technology can upgrade a coal plant so it is greenhouse gas free while reducing operating costs at the same time. In fact, no other technology can achieve either of these goals. The IFR can achieve both.¶ The bottom line is that without the IFR (or a yet-to-be-invented technology with similar ability to replace the coal burner with a cheaper alternative), it is unlikely that we’ll be able to keep CO2 under 450 ppm.¶ Today, the IFR is the only technology with the potential to displace the coal burner. That is why restarting the IFR is so critical and why Jim Hansen has listed it as one of the top five things we must do to avert a climate disaster.[4]¶ Without eliminating virtually all coal emissions by 2030, the sum total of all of our other climate mitigation efforts will be inconsequential. Hansen often refers to the near complete phase-out of carbon emissions from coal plants worldwide by 2030 as the sine qua non for climate stabilization (see for example, the top of page 6 in his August 4, 2008 trip report).¶ To stay under 450ppm, we would have to install about 13,000 GWe of new carbon-free power over the next 25 years. That number was calculated by Nathan Lewis of Caltech for the Atlantic, but others such as Saul Griffith have independently derived a very similar number and White House Science Advisor John Holdren used 5,600 GWe to 7,200 GWe in his presentation to the Energy Bar Association Annual Meeting on April 23, 2009. That means that if we want to save the planet, we must install more than 1 GWe per day of clean power every single day for the next 25 years. That is a very, very tough goal. It is equivalent to building one large nuclear reactor per day, or 1,500 huge wind turbines per day, or 80,000 37 foot diameter solar dishes covering 100 square miles every day, or some linear combination of these or other carbon free power generation technologies. Note that the required rate is actually higher than this because Hansen and Rajendra Pachauri, the chair of the IPCC, now both agree that 350ppm is a more realistic “not to exceed” number (and we’ve already exceeded it).¶ Today, we are nowhere close to that installation rate with renewables alone. For example, in 2008, the average power delivered by solar worldwide was only 2 GWe (which is to be distinguished from the peak solar capacity of 13.4GWe). That is why every renewable expert at the 2009 Aspen Institute Environment Forum agreed that nuclear must be part of the solution. Al Gore also acknowledges that nuclear must play an important role.¶ Nuclear has always been the world’s largest source of carbon free power. In the US, for example, even though we haven’t built a new nuclear plant in the US for 30 years, nuclear still supplies 70% of our clean power!¶ Nuclear can be installed very rapidly; much more rapidly than renewables. For example, about two thirds of the currently operating 440 reactors around the world came online during a 10 year period between 1980 and 1990. So our best chance of meeting the required installation of new power goal and saving the planet is with an aggressive nuclear program.¶ Unlike renewables, nuclear generates base load power, reliably, regardless of weather. Nuclear also uses very little land area. It does not require the installation of new power lines since it can be installed where the power is needed. However, even with a very aggressive plan involving nuclear, it will still be extremely difficult to install clean power fast enough.¶ Unfortunately, even in the US, we have no plan to install the clean power we need fast enough to save the planet. Even if every country were to agree tomorrow to completely eliminate their coal plant emissions by 2030, how do we think they are actually going to achieve that? There is no White House plan that explains this. There is no DOE plan. There is no plan or strategy. The deadlines will come and go and most countries will profusely apologize for not meeting their goals, just like we have with most of the signers of the Kyoto Protocol today. Apologies are nice, but they will not restore the environment.¶ We need a strategy that is believable, practical, and affordable for countries to adopt. The IFR offers our best hope of being a centerpiece in such a strategy because it the only technology we know of that can provide an economically compelling reason to change.¶ At a speech at MIT on October 23, 2009, President Obama said “And that’s why the world is now engaged in a peaceful competition to determine the technologies that will power the 21st century. … The nation that wins this competition will be the nation that leads the global economy. I am convinced of that. And I want America to be that nation, it’s that simple.”¶ Nuclear is our best clean power technology and the IFR is our best nuclear technology. The Gen IV International Forum (GIF) did a study in 2001-2002 of 19 different reactor designs on 15 different criteria and 24 metrics. The IFR ranked #1 overall. Over 242 experts from around the world participated in the study. It was the most comprehensive evaluation of competitive nuclear designs ever done. Top DOE nuclear management ignored the study because it didn’t endorse the design the Bush administration wanted.¶ The IFR has been sitting on the shelf for 15 years and the DOE currently has no plans to change that.¶ How does the US expect to be a leader in clean energy by ignoring our best nuclear technology? Nobody I’ve talked to has been able to answer that question.¶ We have the technology (it was running for 30 years before we were ordered to tear it down). And we have the money: The Recovery Act has $80 billion dollars. Why aren’t we building a demo plant?¶ IFRs are better than conventional nuclear in every dimension. Here are a few:¶ Efficiency: IFRs are over 100 times more efficient than conventional nuclear. It extracts nearly 100% of the energy from nuclear material. Today’s nuclear reactors extract less than 1%. So you need only 1 ton of actinides each year to feed an IFR (we can use existing nuclear waste for this), whereas you need 100 tons of freshly mined uranium each year to extract enough material to feed a conventional nuclear plant.¶ Unlimited power forever: IFRs can use virtually any actinide for fuel. Fast reactors with reprocessing are so efficient that even if we restrict ourselves to just our existing uranium resources, we can power the entire planet forever (the Sun will consume the Earth before we run out of material to fuel fast reactors). If we limited ourselves to using just our DU “waste” currently in storage, then using the IFR we can power the US for over 1,500 years without doing any new mining of uranium.[5]¶ Exploits our largest energy resource: In the US, there is 10 times as much energy in the depleted uranium (DU) that is just sitting there as there is coal in the ground. This DU waste is our largest natural energy resource…but only if we have fast reactors. Otherwise, it is just waste. With fast reactors, virtually all our nuclear waste (from nuclear power plants, leftover from enrichment, and from decommissioned nuclear weapons)[6] becomes an energy asset worth about $30 trillion dollars…that’s not a typo…$30 trillion, not billion.[7] An 11 year old child was able to determine this from publicly available information in 2004.

#### Alternative methods can’t solve warming

**Kirsch 9** (Steve Kirsch, Bachelor of Science and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology, American serial entrepreneur who has started six companies: Mouse Systems, Frame Technology, Infoseek, Propel, Abaca, and OneID, "How Does Obama Expect to Solve the Climate Crisis Without a Plan?" 7/16/9) [http://www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to\_b\_236588.html-http://www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to\_b\_236588.html](http://www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to_b_236588.html-http%3A//www.huffingtonpost.com/steve-kirsch/how-does-obama-expect-to_b_236588.html)

The ship is sinking slowly and we are quickly running out of time to develop and implement any such plan if we are to have any hope of saving the planet. What we need is a plan we can all believe in. A plan where our country's smartest people all nod their heads in agreement and say, "Yes, this is a solid, viable plan for keeping CO2 levels from touching 425ppm and averting a global climate catastrophe."¶ ¶ At his Senate testimony a few days ago, noted climate scientist James Hansen made it crystal clear once again that the only way to avert an irreversible climate meltdown and save the planet is to phase out virtually all coal plants worldwide over a 20 year period from 2010 to 2030. Indeed, if we don't virtually eliminate the use of coal worldwide, everything else we do will be as effective as re-arranging deck chairs on the Titanic.¶ ¶ Plans that won't work¶ ¶ Unfortunately, nobody has proposed a realistic and practical plan to eliminate coal use worldwide or anywhere close to that. There is no White House URL with such a plan. No environmental group has a workable plan either.¶ ¶ Hoping that everyone will abandon their coal plants and replace them with a renewable power mix isn't a viable strategy -- we've proven that in the U.S. Heck, even if the Waxman-Markey bill passes Congress (a big "if"), it is so weak that it won't do much at all to eliminate coal plants. So even though we have Democrats controlling all three branches of government, it is almost impossible to get even a weak climate bill passed.¶ ¶ If we can't pass strong climate legislation in the U.S. with all the stars aligned, how can we expect anyone else to do it? So expecting all countries to pass a 100% renewable portfolio standard (which is far far beyond that contemplated in the current energy bill) just isn't possible. Secondly, even if you could mandate it politically in every country, from a practical standpoint, you'd never be able to implement it in time. And there are lots of experts in this country, including Secretary Chu, who say it's impossible without nuclear (a point which I am strongly in agreement with).¶ ¶ Hoping that everyone will spontaneously adopt carbon capture and sequestration (CCS) is also a non-starter solution. First of all, CCS doesn't exist at commercial scale. Secondly, even if we could make it work at scale, and even it could be magically retrofitted on every coal plant (which we don't know how to do), it would require all countries to agree to add about 30% in extra cost for no perceivable benefit. At the recent G8 conference, India and China have made it clear yet again that they aren't going to agree to emission goals.¶ ¶ Saying that we'll invent some magical new technology that will rescue us at the last minute is a bad solution. That's at best a poor contingency plan.¶ ¶ The point is this: It should be apparent to us that we aren't going to be able to solve the climate crisis by either "force" (economic coercion or legislation) or by international agreement. And relying on technologies like CCS that may never work is a really bad idea.¶ ¶ The only remaining way to solve the crisis is to make it economically irresistible for countries to "do the right thing." The best way to do that is to give the world a way to generate electric power that is economically more attractive than coal with the same benefits as coal (compact power plants, 24x7 generation, can be sited almost anywhere, etc). Even better is if the new technology can simply replace the existing burner in a coal plant. That way, they'll want to switch. No coercion is required.

#### IFRs solve massive energy and overpopulation crunches that spark resource wars and water scarcity – no alternatives can solve

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

The global threat of anthropogenic climate change has become a political hot potato, especially in the USA. The vast majority of climate scientists, however, are in agreement that the potential consequences of inaction are dire indeed. Yet even those who dismiss concerns about climate change cannot discount an array of global challenges facing humanity that absolutely must be solved if wars, dislocations, and social chaos are to be avoided.¶ Human population growth exacerbates a wide range of problems, and with most demographic projections predicting an increase of about 50% to nine or ten billion by mid-century, we are confronted with a social and logistical dilemma of staggering proportions. The most basic human morality dictates that we attempt to solve these problems without resorting to forcible and draconian methods. At the same time, simple social justice demands that the developed world accept the premise that the billions who live today in poverty deserve a drastic improvement in their standard of living, an improvement that is being increasingly demanded and expected throughout the developing countries. To achieve environmental sustainability whilst supporting human well-being will require a global revolution in energy and materials technology and deployment fully as transformative as the Industrial Revolution, but unlike that gradual process we find ourselves under the gun, especially if one considers climate change, peak oil and other immediate sustainability problems to be bona fide threats.¶ It is beyond the purview of this paper to address the question of materials disposition and recycling [i], or the social transformations that will necessarily be involved in confronting the challenges of the next several decades. But the question of energy supply is inextricably bound up with the global solution to our coming crises. It may be argued that energy is the most crucial aspect of any proposed remedy. Our purpose here is to demonstrate that the provision of all the energy that humankind can possibly require to meet the challenges of the coming decades and centuries is a challenge that already has a realistic solution, using technology that is just waiting to be deployed.¶ Energy Realism¶ The purpose of this paper is not to exhaustively examine the many varieties of energy systems currently in use, in development, or in the dreams of their promoters. Nevertheless, because of the apparent passion of both the public and policymakers toward certain energy systems and the political influence of their advocates, a brief discussion of “renewable” energy systems is in order. Our pressing challenges make the prospect of heading down potential energy cul de sacs – especially to the explicit exclusion of nuclear fission alternatives – to be an unconscionable waste of our limited time and resources.¶ There is a vocal contingent of self-styled environmentalists who maintain that wind and solar power—along with other technologies such as wave and tidal power that have yet to be meaningfully developed—can (and should) provide all the energy that humanity demands. The more prominent names are well-known among those who deal with these issues: Amory Lovins, Lester Brown and Arjun Makhijani are three in particular whose organizations wield considerable clout with policymakers. The most recent egregious example to make a public splash, however, was a claim trumpeted with a cover story in Scientific American that all of our energy needs can be met by renewables (predominantly ‘technosolar’ – wind and solar thermal) by 2030. The authors of this piece—Mark Jacobson (Professor, Stanford) and Mark A. Delucchi (researcher, UC Davis)—were roundly critiqued [ii] online and in print.¶ An excellent treatment of the question of renewables’ alleged capacity to provide sufficient energy is a book by David MacKay [iii] called Sustainable Energy – Without the Hot Air. [iv] MacKay was a professor of physics at Cambridge before being appointed Chief Scientific Advisor to the Department of Energy and Climate Change in the UK. His book is a model of scientific and intellectual rigor.¶ Energy ideologies can be every bit as fervent as those of religion, so after suggesting Dr. MacKay’s book as an excellent starting point for a rational discussion of energy systems we’ll leave this necessary digression with a point to ponder. Whatever one believes about the causes of climate change, there is no denying that glaciers around the world are receding at an alarming rate. Billions of people depend on such glaciers for their water supplies. We have already seen cases of civil strife and even warfare caused or exacerbated by competition over water supplies. Yet these are trifling spats when one considers that the approaching demographic avalanche will require us to supply about three billion more people with all the water they need within just four decades.¶ There is no avoiding the fact that the water for all these people—and even more, if the glaciers continue to recede, as expected—will have to come from the ocean. That means a deployment of desalination facilities on an almost unimaginable scale. Not only will it take staggering amounts of energy just to desalinate such a quantity, but moving the water to where it is needed will be an additional energy burden of prodigious proportions. A graphic example can be seen in the case of California, its state water project being the largest single user of energy in California. It consumes an average of 5 billion kWh/yr, more than 25% of the total electricity consumption of the entire state of New Mexico [v].¶ Disposing of the salt derived from such gargantuan desalination enterprises will likewise take a vast amount of energy. Even the relatively modest desalination projects along the shores of the Persian Gulf have increased its salinity to the point of serious concern. Such circumscribed bodies of water simply won’t be available as dumping grounds for the mountains of salt that will be generated, and disposing of it elsewhere will require even more energy to move and disperse it. Given the formidable energy requirements for these water demands alone, any illusions about wind turbines and solar panels being able to supply all the energy humanity requires should be put to rest.¶ Energy Density and Reliability¶ Two of the most important qualities of fossil fuels that enabled their rise to prominence in an industrializing world is their energy density and ease of storage. High energy density and a stable and convenient long-term fuel store are qualities that makes it practical and economical to collect, distribute, and then use them on demand for the myriad of uses to which we put them. This energy density, and the dispatchability that comes from having a non-intermittent fuel source, are the very things lacking in wind and solar and other renewable energy systems, yet they are crucial factors in considering how we can provide reliable on-demand power for human society.¶ The supply of fossil fuels is limited, although the actual limits of each different type are a matter of debate and sometimes change substantially with new technological developments, as we’ve seen recently with the adoption of hydraulic fracturing (fracking) methods to extract natural gas from previously untapped subterranean reservoirs. The competition for fossil fuel resources, whatever their limitations, has been one of the primary causes of wars in the past few decades and can be expected to engender further conflicts and other symptoms of international competition as countries like India and China lead the developing nations in seeking a rising standard of living for their citizens. Even disregarding the climatological imperative to abandon fossil fuels, the economic, social, and geopolitical upheavals attendant upon a continuing reliance on such energy sources demands an objective look at the only other energy-dense and proven resource available to us: nuclear power.¶ We will refrain from discussing the much hoped-for chimera of nuclear fusion as the magic solution to all our energy needs, since it is but one of many technologies that have yet to be harnessed. Our concern here is with technologies that we know will work, so when it comes to harnessing the power of the atom we are confined to nuclear fission. The splitting of uranium and transuranic elements in fission-powered nuclear reactors is a potent example of energy density being tapped for human uses. Reactor-grade uranium (i.e. uranium enriched to about 3.5% U-235) is over 100,000 times more energy-dense than anthracite coal, the purest form of coal used in power generation, and nearly a quarter-million times as much as lignite, the dirty coal used in many power plants around the world. Ironically, one of the world’s largest producers and users of lignite is Germany, the same country whose anti-nuclear political pressure under the banner of environmentalism is globally infamous.¶ The vast majority of the world’s 440 commercial nuclear power plants are light-water reactors (LWRs) that use so-called enriched uranium (mentioned above). Natural uranium is comprised primarily of two isotopes: U-235 and U-238. The former comprises only 0.7% of natural uranium, with U-238 accounting for the remaining 99.3%. LWR technology requires a concentration of at least 3.5% U-235 in order to maintain the chain reaction used to extract energy, so a process called uranium enrichment extracts as much of the U-235 as possible from several kilos of natural uranium and adds it to a fuel kilo in order to reach a concentration high enough to enable the fission process. Because current enrichment technology is capable of harvesting only some of the U-235, this results in about 8-10 kilos of “depleted uranium” (DU) for every kilo of power plant fuel (some of which is enriched to 4% or more, depending on plant design). The USA currently has (largely unwanted) stockpiles of DU in excess of half a million tons, while other countries around the world that have been employing nuclear power over the last half-century have their own DU inventories.¶ Technological advances in LWR engineering have resulted in new power plants that are designated within the industry as Generation III or III+ designs, to differentiate them from currently-used LWRs normally referred to as Gen II plants. The European Pressurized Reactor (EPR), currently being built by AREVA in Finland, France and China, is an example of a Gen III design. It utilizes multiple-redundant engineered systems to assure safety and dependability. Two examples of Gen III+ designs are the Westinghouse/Toshiba AP-1000, now being built in China, and GE/Hitachi’s Economic Simplified Boiling Water Reactor (ESBWR), expected to be certified for commercial use by the U.S. Nuclear Regulatory Commission by the end of 2011. The distinguishing feature of Gen III+ designs is their reliance on the principle of passive safety, which would allow the reactor to automatically shut down in the event of an emergency without operator action or electronic feedback, due to inherent design properties. Relying as they do on the laws of physics rather than active intervention to intercede, they consequently can avoid the necessity for several layers of redundant systems while still maintaining ‘defense in depth’, making it possible to build them both faster and cheaper than Gen III designs—at least in theory. As of this writing we are seeing this playing out in Finland and China. While it is expected that first-of-a-kind difficulties (and their attendant costs) will be worked out so that future plants will be cheaper and faster to build, the experience to date seems to validate the Gen III+ concept. Within a few years both the EPR and the first AP-1000s should be coming online, as well as Korean, Russian and Indian designs, at which point actual experience will begin to tell the tale as subsequent plants are built.¶ The safety and economics of Gen III+ plants seem to be attractive enough to consider this generation of nuclear power to provide reasons for optimism that humanity can manage to provide the energy needed for the future. But naysayers are warning (with highly questionable veracity) about uranium shortages if too many such plants are built. Even if they’re right, the issue can be considered moot, for there is another player waiting in the wings that is so superior to even Gen III+ technology as to render all concerns about nuclear fuel shortages baseless.¶ The Silver Bullet¶ In the endless debate on energy policy and technology that seems to increase by the day, the phrase heard repeatedly is “There is no silver bullet.” (This is sometimes rendered “There is no magic bullet”, presumably by those too young to remember the Lone Ranger TV series.) Yet a fission technology known as the integral fast reactor (IFR), developed at Argonne National Laboratory in the 80s and 90s, gives the lie to that claim.¶ Below is a graph [vi] representing the number of years that each of several power sources would be able to supply all the world’s expected needs if they were to be relied upon as the sole source of humanity’s energy supply. The categories are described thusly:¶ Conventional oil: ordinary oil drilling and extraction as practiced today¶ Conventional gas: likewise¶ Unconventional oil (excluding low-grade oil shale). More expensive methods of recovering oil from more problematic types of deposits¶ Unconventional gas (excluding clathrates and geopressured gas): As with unconventional oil, this encompasses more costly extraction techniques¶ Coal: extracted with techniques in use today. The worldwide coal estimates, however, are open to question and may, in fact, be considerably less than they are ordinarily presented to be, unless unconventional methods like underground in situ gasification are deployed. [vii]¶ Methane Clathrates & Geopressured Gas: These are methane resources that are both problematic and expensive to recover, with the extraction technology for clathrates only in the experimental stage.¶ Low-grade oil shale and sands: Very expensive to extract and horrendously destructive of the environment. So energy-intensive that there have been proposals to site nuclear power plants in the oil shale and tar sands areas to provide the energy for extraction!¶ Uranium in fast breeder reactors (IFRs being the type under discussion here) Integral fast reactors can clearly be seen as the silver bullet that supposedly doesn’t exist. The fact is that IFRs can provide all the energy that humanity requires, and can deliver it cleanly, safely, and economically. This technology is a true game changer.

#### Resource scarcity causes global wars – highly probable

**Klare 2006** – professor of peace and world security studies at Hampshire College

(Michael, Mar 6 2006, “The coming resource wars” http://www.energybulletin.net/node/13605)

It's official: the era of resource wars is upon us. In a major London address, British Defense Secretary John Reid warned that global climate change and **dwindling natural resources are combining to increase the likelihood of violent conflict** over land, water and energy. Climate change, he indicated, “will make scarce resources, clean water, viable agricultural land even scarcer”—and this will “make the emergence of violent conflict more rather than less likely.” Although not unprecedented, Reid’s prediction of an upsurge in resource conflict is significant both because of his senior rank and the vehemence of his remarks. “The blunt truth is that the lack of water and agricultural land is a significant contributory factor to the tragic conflict we see unfolding in Darfur,” he declared. “We should see this as a warning sign.” Resource conflicts of this type are most likely to arise in the developing world, Reid indicated, but the more advanced and affluent countries are not likely to be spared the damaging and destabilizing effects of global climate change. With sea levels rising, water and energy becoming increasingly scarce and prime agricultural lands turning into deserts, internecine warfare over access to vital resources will become a global phenomenon. Reid’s speech, delivered at the prestigious Chatham House in London (Britain’s equivalent of the Council on Foreign Relations), is but the most recent expression of a growing trend in strategic circles to view environmental and resource effects—rather than political orientation and ideology—as the most potent source of armed conflict in the decades to come. With the world population rising, global consumption rates soaring, energy supplies rapidly disappearing and climate change eradicating valuable farmland, the stage is being set for persistent and worldwide struggles over vital resources. Religious and political strife will not disappear in this scenario, but rather will be channeled into contests over valuable sources of water, food and energy.

#### Water scarcity causes extinction

**Coddrington 10** (7/1, http://www.tomorrowtoday.co.za/2010/07/01/a-looming-crisis-world-water-wars/

PhD-Business Adminstration & Guest lecturer at top business schools, including the London Business School, Duke Corporate Education and the Gordon Institute of Business Science.)

People go to war when their way of life is threatened. I have written before about the many issues we face in the coming years that threaten our way of life. These include global warming/climate change, pollution, pandemics, nuclear bombs, intelligent machines, genetics, and more. More and more I am becoming convinced that the next major regional/global conflict will be over water. We are much more likely to have water wars in the next decade than nuclear ones. And I were to guess, I’d say that it is most likely to happen in around North East Africa. This is a region with its own internal issues. But it also has the foreign involvement of America, China, the Middle Eastern Arab nations, and (increasingly) Israel. Quite a potent mix… Last week, Addis Ababa, Ethiopia hosted the 18th regular meeting of the Council of Ministers of Water Affairs of the Nile Basin countries. In the lead up to the conference, Ethiopia, Rwanda, Uganda, Tanzania and Kenya, the five countries that are all upstream of Egypt and Sudan concluded a water-sharing treaty – to the exclusion of Egypt and Sudan. This has obviously reignited the longstanding dispute over water distribution of the world’s longest river in the world’s driest continent. Egypt is currently the largest consumer of Nile water and is the main beneficiary of a 1929 treaty which allows it to take 55.5 billion cubic metres of water each year, or 87% of the White and Blue Nile’s flow. By contrast, Sudan is only allowed to draw 18.5 billion cubic metres. On attaining independence Sudan refused to acknowledge the validity of the Nile water treaty and negotiated a new bilateral treaty with Egypt in 1959. Kenya, Tanzania and Uganda also expressly refused to be bound by the treaty when they attained independence, but have not negotiated a new treaty since then. Under the 1929 treaty, Egypt has powers over upstream projects: The Nile Waters Agreement of 1929 states that no country in the Nile basin should undertake any works on the Nile, or its tributaries, without Egypt’s express permission. This gives Egypt a veto over anything, including the building of dams on numerous rivers in Kenya, Burundi, Rwanda, Tanzania, Ethiopia, and by implication Egypt has control over agriculture, industry and infrastructure and basic services such as drinking water and electricity in these countries. This is surely untenable. But if the other countries broke the treaty, would Egypt respond with force? Since the late 1990s, Nile Basin states have been trying unsuccessfully to develop a revised framework agreement for water sharing, dubbed the Nile Basin Initiative (NBI). In May 2009, talks held in Kinshasa broke down because Egypt and Sudan’s historical water quotas were not mentioned in the text of the proposed agreement. Water ministers met again in July 2009 in Alexandria, where Egypt and Sudan reiterated their rejection of any agreement that did not clearly establish their historical share of water. This is an untenable position. Upstream states accuse Egypt and Sudan of attempting to maintain an unfair, colonial-era monopoly on the river. Egyptian officials and analysts, however, defend their position, pointing out that Egypt is much more dependent on the river for its water needs than its upstream neighbours. Egypt claims that Nile water accounts for more than 95% of Egypt’s total water consumption, although they appear to be working hard to reduce both their water usage (they’re stopping growing rice, for example) and their dependence on the Nile.

### Solvency

#### Contention 4: Solvency

#### Current loan guarantees aren’t enough – more on new reactor types are key to catalyze nuclear construction and solve nuclear leadership

**Belogolova 12** [National Journal Daily, July 19, 2012, “U.S. Nuclear Industry Seen Needing a Boost”, Olga Belogolova, lexis, khirn]

A robust nuclear-energy industry should be a high priority for the country's energy and national-security policy given the importance of the sector to global nonproliferation, according to a new report released on Thursday by the Bipartisan Policy Center's Nuclear Initiative . Specifically, the United States needs to lead in the licensing and development **of new reactors** and on safety reforms, management of spent nuclear fuel, the nuclear-export market, and research and development in the nuclear sector, according to the report led by former Sen. Pete Domenici, R-N.M., and former Energy Department Assistant Secretary for Nuclear Energy Warren (Pete) Miller. But leadership on nuclear issues could prove to be a challenge for the United States. Although the country has long led the charge on civilian nuclear power, the combination of a slowed electricity market, the lack of sweeping climate legislation, a natural-gas boom, and last year's Fukushima Daiichi nuclear accident in Japan have created obstacles for the development of new nuclear power in the United States in recent years. While the Nuclear Regulatory Commission this year has approved four new reactors for the Vogtle and Summer nuclear plants in Georgia and South Carolina, respectively, there are likely to only be a few more plants licensed in the United States in the near future. The story is very different on the international level. After Fukushima, countries such as Germany, Italy, Switzerland, and of course Japan have paused or slowed down their nuclear-energy development, but that hasn't stopped the rest of the world. Many other nations such as China, India, South Korea, and Russia have reaffirmed plans to expand their fleets of nuclear reactors, while some countries in the Middle East have even announced plans to develop nuclear energy for the first time. China alone, which has 26 new reactors under development, is expected to account for 40 percent of planned nuclear construction globally. The United States might be a leader now, accounting for nearly one-third of global nuclear generation, but it won't be long before others come out ahead of us, especially given how long it takes to construct new reactors, Domenici and Miller explained. "It will be increasingly difficult for the United States to maintain its technological leadership without some near-term domestic demand for new construction," they write in the report. In order to control the proliferation of nuclear weapons, the United States **needs to remain involved in everything** that happens to nuclear materials, from the export of nuclear fuel for energy use to the disposal of spent fuel. Given the global picture, Domenici and Miller suggest a shift in U.S. policies in order to ensure that the U.S. nuclear energy program is not stuck at a near-standstill. "Market signals alone are unlikely to result in a diverse fuel mix, so helping to maintain and improve a range of electricity supply options remains a role for federal policy," the two write in the report. "In particular, U.S. policy should be aimed at helping to preserve nuclear energy as an important technology option for near- or longer-term deployment." The vast shale-gas reserves in the United States and new technology to tap them will probably keep natural-gas prices low for the foreseeable future, making financing of more expensive nuclear power more difficult. **Federal loan guarantees have long been viewed as crucial to growing the nuclear industry**, but the Energy Department has dragged its feet on these conditional loans, especially after the bankruptcy of the federally funded solar firm Solyndra so much so that some companies have decided not to wait around and see what happens. Southern Company, which is building the first two new reactors to be approved in decades at its Vogtle nuclear plant in Georgia, on Thursday said that it is now considering doing so without federal support. The company had been waiting for an $8.33 billion loan guarantee to build the two new reactors, but Southern CEO Tom Fanning told Reuters on Thursday that talks with DOE were going slowly and they might not be willing to wait any longer.

#### Loan guarantees attract private capital – increases are key

**Peskoe 12** [Ari Peskoe, associate in the law firm of McDermott Will and Emery LLP and focuses his practice on regulatory, legislative, compliance, and transactional issues related to energy markets, 4-20-2012, "A Solution Looking For a Problem: Building More Nuclear Reactors after Vogtle," The Electricty Journal, vol 25 issue 3, Science Direct]

Given the checkered history of reactor construction projects,56 private lenders are understandably skittish about lending billions of dollars to develop a new reactor. Construction of the Vogtle and SCANA reactors will be a critical test, and significant cost overruns on these two projects could doom the prospects for construction of additional reactors. Even if the construction of Vogtle and SCANA are on budget, it will likely still be difficult for future project developers to raise enough debt financing without government support.57 Federal loan guarantees shift “a large part of the learning costs and construction risks” from private lenders to the federal government by ensuring that lenders receive payment in the event that the developer defaults on repayments.58 Appropriations for the guarantees authorized by the Energy Policy Act of 2005 will soon run out, so future guarantees will require congressional action.59¶ Loan guarantees cost the federal government little or nothing unless there is an event of default.60 Creating a long-term guarantee program would be entirely consistent with the government's historic role in accepting risks and liabilities of nuclear power. Although it has not been implemented effectively, the Nuclear Waste Policy Act (NWPA) of 1982 requires the DOE to transport nuclear waste from privately owned reactors to permanent government storage facilities.61 Concerned about a “cloud of bankruptcy” hanging over its operations,62 the nascent nuclear industry pushed Congress to pass the Price-Anderson Act in 1957, which indemnifies the industry against claims arising from a nuclear incident. Both the NWPA and the Price-Anderson Act socialize costs of nuclear energy. In the case of the NWPA, the industry pays the DOE a tenth of a penny for each kilowatt-hour of nuclear energy sold to fund waste disposal activities.63 The Price-Anderson Act also requires generators to contribute to a fund, but the federal treasury would likely cover much of the liabilities associate with a nuclear disaster.64

#### And, loan guarantees reduce financial uncertainty and boost investment

Adams 10—Publisher of Atomic insights Was in the Navy for 33 years Spent time at the Naval Academy Has experience designing and running small nuclear plants (Rod, Concrete Action to Follow Strongly Supportive Words On Building New Nuclear Power Plants, atomicinsights.com/2010/01/concrete-action-to-follow-strongly-supportive-words-on-building-new-nuclear-power-plants.html)

Loan guarantees are important to the nuclear industry because the currently available models are large, capital intensive projects that need a stable regulatory and financial environment. The projects can be financed because they will produce a regular stream of income that can service the debt and still provide a profit, but that is only true if the banks are assured that the government will not step in at an inopportune time to halt progress and slow down the revenue generation part of the project. Bankers do not forget history or losses very easily; they want to make sure that government decisions like those that halted Shoreham, Barnwell’s recycling facility or the Clinch River Breeder Reactor program are not going to be repeated this time around. For the multi-billion dollar projects being proposed, bankers demand the reassurance that comes when the government is officially supportive and has some “skin in the game” that makes frivolous bureaucratic decisions to erect barriers very expensive for the agency that makes that decision. I have reviewed the conditions established for the guarantee programs pretty carefully – at one time, my company ([Adams Atomic Engines, Inc.](http://www.atomicengines.com)) was considering filing an application. The loan conditions are strict and do a good job of protecting government interests. They were not appropriate for a tiny company, but I can see where a large company would have less trouble complying with the rules and conditions. The conditions do allow low or no cost intervention in the case of negligence or safety issues, but they put the government on the hook for delays that come from bad bureaucratic decision making.

#### Manhattan Project approach key to catalyze quick investment in IFRs – perception is non-unique, there is government investment now

**Kirsch 9** [Steve Kirsch, founder and CEO of multiple tech companies collectively worth over %241 billion and MS in Electrical Engineering and Computer Science from MIT, November 2009, "Why We Should Build an Integral Fast Reactor Now,"]

Q. If this is really so good, how come GE isn't building S-PRISM on their own nickel?¶ Nobody wants to risk it since it isn't a slam dunk. You don't get a reward if you solve global warming. And government funding doesn't seem to be so easy. DOE tried to get funding for GNEP (which included IFR technology) and got shot down (so far).¶ GE is a large conservative corporation. They already service a fleet of lightwater reactors, are building more of them around the world, and have the promise of yet more. It's hard enough in this country to move into new levels of reactor technology without trying to leapfrog straight into the 4th generation. Their 3rd generation ESBWR is in the 5th round of NRC certification, whereas the S-PRISM (a souped up and more developed version of the PRISM) isn't at the starting gate. These things take years at the glacial pace of the NRC, though of course if President Obama decided to go all Manhattan project on it we could most definitely get there quickly enough. If GE started pushing 4th generation breeder reactors, can you imagine the hue and cry from the antie groups? What's their incentive to do that? If they're convinced that ultimately we'll end up at 4th generation reactors anyway and they can make plenty of dough and keep a low profile just taking the go slow approach, don't you imagine that's exactly what they'll do? Besides, conceivably another country with whom we have nuclear technology sharing agreements might very well certify and build it before the NRC ever gets out of the starting gate, which would make it much easier for the eventual NRC certification. Q. If this is really so good, how come someone in government isn't trying to get it restarted?¶ The DOE is attempting to resuscitate fast-reactor technology, as part of the GNEP (Global Nuclear Energy Partnership) initiative. See¶ http://www.gnep.energy.gov/gnepPRs/gnepPR011007.html, and http://www.gnep.energy.gov/.¶ The IFR is one form of fast-reactor technology (metallic fuel with pyroprocessing), but there are others -- inferior, according to the IFR scientists. The important thing these days is to get the U.S. back into a leadership role in the development and management of nuclear power, recognizing that recycling in fast reactors is necessary if the long-lived waste is to be consumed, and if the full energy potential of the uranium is to be exploited. The GNEP would resuscitate fast-reactor technology in this country.

#### Plan is modeled internationally

**Blees et al** 11 (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) [http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/](http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http%3A//bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/)

There are many compelling reasons to pursue the rapid demonstration of a full-scale IFR, as a lead-in to a subsequent global deployment of this technology within a relatively short time frame. Certainly the urgency of climate change can be a potent tool in winning over environmentalists to this idea. Yet political expediency—due to widespread skepticism of anthropogenic causes for climate change—suggests that the arguments for rolling out IFRs can be effectively tailored to their audience. Energy security—especially with favorable economics—is a primary interest of every nation.¶ The impressive safety features of new nuclear power plant designs should encourage a rapid uptick in construction without concern for the spent fuel they will produce, for all of it will quickly be used up once IFRs begin to be deployed. It is certainly manageable until that time. Burying spent fuel in non-retrievable geologic depositories should be avoided, since it represents a valuable clean energy resource that can last for centuries even if used on a grand scale.¶ Many countries are now beginning to pursue fast reactor technology without the cooperation of the United States, laboriously (and expensively) re-learning the lessons of what does and doesn’t work. If this continues, we will see a variety of different fast reactor designs, some of which will be less safe than others. Why are we forcing other nations to reinvent the wheel? Since the USA invested years of effort and billions of dollars to develop what is arguably the world’s safest and most efficient fast reactor system in the IFR, and since several nations have asked us to share this technology with them (Russia, China, South Korea, Japan, India), there is a golden opportunity here to develop a common goal—a standardized design, and a framework for international control of fast reactor technology and the fissile material that fuels them. This opportunity should be a top priority in the coming decade, if we are serious about replacing fossil fuels worldwide with sufficient pace to effectively mitigate climate change and other environmental and geopolitical crises of the 21st century.

#### IFR’s S-PRISM design is super safe

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

Metal Fuel: The Ultimate Safety Valve¶ One of the most important of the many superlatives of the IFR is its use of a metal fuel comprised of uranium, plutonium and zirconium, and the ingenious manner in which the Argonne team solved the problems of fuel expansion and fuel fabrication, as well as the potentially dangerous overheating scenario. Unlike the fuel fabrication of oxide-fueled reactors that requires the dimensions of the fuel pellets to be uniform to very exacting tolerances, the metal fuel for the IFR can be simply injected into molds and then cooled and inserted into metal tubes (cladding) with a great deal of dimensional tolerance, with a sodium bond filling any voids. If an accident situation occurs that would cause the core to overheat, such as a loss of coolant flow accident, the metal fuel itself will expand, causing neutron leakage to terminate the chain reaction, relying on nothing but the laws of physics.¶ The passive safety characteristics of the IFR were tested in EBR-II on April 3, 1986, against two of the most severe accident events postulated for nuclear power plants. The first test (the Loss of Flow Test) simulated a complete station blackout, so that power was lost to all cooling systems. The second test (the Loss of Heat Sink Test) simulated the loss of ability to remove heat from the plant by shutting off power to the secondary cooling system. In both of these tests, the normal safety systems were not allowed to function and the operators did not interfere. The tests were run with the reactor initially at full power.¶ In both tests, the passive safety features simply shut down the reactor with no damage. The fuel and coolant remained within safe temperature limits as the reactor quickly shut itself down in both cases. Relying only on passive characteristics, EBR-II smoothly returned to a safe condition without activation of any control rods and without action by the reactor operators. The same features responsible for this remarkable performance in EBR-II will be incorporated into the design of future IFR plants, regardless of how large they may be [xi].¶ While the IFR was under development, a consortium of prominent American companies led by General Electric collaborated with the IFR team to design a commercial-scale reactor based upon the EBR-II research. This design, currently in the hands of GE, is called the PRISM (Power Reactor Innovative Small Module). A somewhat larger version (with a power rating of 380 MWe) is called the S-PRISM. As with all new nuclear reactor designs (and many other potentially hazardous industrial projects), probabilistic risk assessment studies were conducted for the S-PRISM. Among other parameters, the PRA study estimated the frequency with which one could expect a core meltdown. This occurrence was so statistically improbable as to defy imagination. Of course such a number must be divided by the number of reactors in service in order to convey the actual frequency of a hypothetical meltdown. Even so, if one posits that all the energy humanity requires were to be supplies solely by IFRs (an unlikely scenario but one that is entirely possible), the world could expect a core meltdown about once every 435,000 years [xii]. Even if the risk assessment understated the odds by a factor of a thousand, this would still be a reactor design that even the most paranoid could feel good about.

#### IFR fuel can be obtained from seawater – makes energy infinite

Archambeauet all 11 [The Integral Fast Reactor (IFR): An Optimized Source for Global Energy Needs, Charles Archambeau, Science Council for Global Initiatives, Randolph Ware, Cooperative Institute for Research in Environmental Sciences, Tom Blees, National Center for Atmospheric Research, Barry Brook, University of Adelaide, Jerry Peterson, Argonne National Laboratory,¶ Yoon Chang, University of Colorado, February 2011]

The pyroprocessor unit can be used as a stand-alone system to process LWR waste from¶ any open cycle reactor into fuel for IFR closed cycle reactors. The depleted Uranium¶ produced by the enrichment of Uranium ore can also be processed to generate additional¶ IFR fuel. The current amount of LWR waste, plus the amount of depleted Uranium in¶ stock piles world-wide, is sufficient to supply fuel to all the IFR plants needed and in fact¶ to supply the world's required energy for about 1000 years.3 The problem of storage of¶ current LWR waste and depleted Uranium waste from refining of mined Uranium is¶ therefore solved by pyroprocessor generation of IFR fuel, along with a relatively small¶ mass of short-lived fission products which can be easily and safely stored. Uranium can¶ also be extracted from sea water using IFR power sources (see, for example, Cohen, 1983).¶ Because Uranium is constantly added to seawater by erosion processes, then the IFR fuel¶ source is effectively unlimited. Therefore, IFR power plants do not require fuel from¶ regular mining operations, as does a LWR powered plant, but can use pyroprocessor¶ generated fuel essentially indefinitely. In this sense the IFR is a "renewable" energy source¶ which can be expanded, essentially indefinitely, to meet demand.

#### Government support is vital-~--it overcomes financial barriers to nuclear that the market cannot

Yanosek 12 Kassia, entrepreneur-in-residence at Stanford University’s Steyer-Taylor Center for Energy Policy and Finance and a private equity investor in the energy sector as a principal at Quadrant Management and Founder of Tana Energy Capital LLC, " Financing Nuclear Power in the US", Spring, energyclub.stanford.edu/index.php/Journal/Financing\_Nuclear\_Power\_by\_Kassia\_Yanosek

Over the course of the last decade, it appeared that concerns about carbon emissions, aging coal fleets, and a desire for a diversified generation base were reviving the U.S. utility sector interest in building new nuclear plants. Government and companies worked closely on design certification for Generation III reactors, helping to streamline the licensing process. New loan guarantees from the federal government targeted for nuclear projects were created as part of the 2005 Energy Policy Act. Consequently, dozens of projects entered the planning stages. Following more than 30 years in which no new units were built, it looked as if the U.S. nuclear industry was making significant headway. However, it is yet to be seen how many new nuclear projects will actually make it beyond blueprints due to one of the largest barriers to new nuclear construction: financing risk. Large upfront capital costs, a complex regulatory process, uncertain construction timelines, and technology challenges result in a risk/return profile for nuclear projects that is unattractive for the capital markets without supplementary government or ratepayer support. To many investors, nuclear seems too capital-intensive. Nuclear energy has attractive qualities in comparison to other sources of electricity. A primary motivation to pursue the development of nuclear energy in the U.S. has been its low operating fuel costs compared with coal, oil, and gas-fired plants. Over the lifetime of a generating station, fuel makes up 78% of the total costs of a coal-fired plant. For a combined cycle gas-fired plant, the figure is 89%. According to the Nuclear Energy Institute, the costs for nuclear are approximately 14%, and include processing, enrichment, and fuel management/disposal costs. Today’s low natural gas prices have enhanced the prospects of gas-fired power, but utilities still remain cautious about over-investing in new natural gas generation given the historical volatility of prices. Furthermore, nuclear reactors provide baseload power at scale, which means that these plants produce continuous, reliable power to consistently meet demand. In contrast, renewable energies such as wind or solar are only available when the wind blows or the sun shines, and without storage, these are not suitable for large-scale use. Finally, nuclear energy produces no carbon emissions, which is an attractive attribute for utilities that foresee a carbon tax being imposed in the near future. Given nuclear’s benefits, one may wonder why no new nuclear units have been ordered since the 1970s. This hiatus is in great part due to nuclear’s high cost comparative to other alternatives, and its unique set of risks. As a result, financing nuclear has necessitated government involvement, as the cost of nuclear typically exceeds that of the cost of conventional generation technologies such as coal and natural gas fired generation on a levelized cost of energy (LCOE) basis. LCOE represents the present value of the total cost of building and operating a generating plant over its financial life, converted to equal annual payments and amortized over expected annual generation, and is used to compare across different power generation technologies. For both regulated utilities and independent power producers, nuclear is unattractive if the levelized cost exceeds that of other technologies, since state utility commissions direct regulated utilities to build new capacity using the technology with the lowest LCOE. Furthermore, capital costs are inherently high, ranging in the billions or tens of billions of dollars, and are compounded by financing charges during long construction times. Without government support, financing nuclear is currently notpossible in the capital markets. Recently, Constellation Energy and NRG separately pulled the plug on new multi-billion dollar plants, citing financing problems. Projects, however, will get done on a one-off basis. Southern Company’s Vogtle Plant in Eastern Georgia is likely to be the sponsor of the first new generation to be constructed, taking advantage of local regulatory and federal support. Two new reactors of next-generation technology are in the permitting stage, which will bring online 2,200 megawatts (MW) of new capacity, and will cost $14 billion. The project will take advantage of tax credits and loan guarantees provided in the 2005 Energy Policy Act.

#### IFR’s are really cheap – existing coal plants can be retrofitted – solves warming

Archambeauet all 11 [The Integral Fast Reactor (IFR): An Optimized Source for Global Energy Needs, Charles Archambeau, Science Council for Global Initiatives, Randolph Ware, Cooperative Institute for Research in Environmental Sciences, Tom Blees, National Center for Atmospheric Research, Barry Brook, University of Adelaide, Jerry Peterson, Argonne National Laboratory,¶ Yoon Chang, University of Colorado, February 2011]

The new features of the IFR systems with pyroprocessing are such that the cost of¶ electrical energy production is estimated to be quite low, in the range below $.01 per¶ kilowatt-hour for an IFR. (For comparison, natural gas fuel cost was at $.05 per kilowatthour,¶ and coal was at about $.03 per kilowatt-hour, while LWR nuclear power was at $.02¶ per kilowatt-hour.) The G.E. estimated building cost of the S-Prism reactor (Fletcher,¶ 2006) is $1300/kw, where this cost assumes some cost savings due to mass production and¶ modular construction. For a commercial level gigawatt reactor (using 3 modular S-Prism¶ reactors with 380 MW of power from each) the cost would total $1.3 billion dollars per¶ one gigawatt plant. These nuclear plants are essentially carbon dioxide emissions free, and¶ in general produce no atmospheric pollution. Further, all the Uranium fuel can be provided¶ from processing the stock piles of spent and depleted Uranium fuel. Therefore, no Uranium¶ mining and associated pollution will occur. Likewise, IFR waste material is minimal and¶ short-lived so that no pollution will occur from this source. Consequently, significant¶ reduction in greenhouse gases, and a variety of other dangerous pollutants, can be¶ immediately achieved if these IFR plants are used to replace the furnaces in coal burning¶ power plants which exist in profusion world-wide. Here the infrastructure at existing coal fueled plants, such as electric power lines, water sources and conduits, steam turbines, etc.,¶ can all be simply converted and used in the nuclear powered plant. Hence, costs of¶ building complete power plants and their electrical connections to the grid can be¶ minimized while the impact on global warming and pollution related diseases can be¶ maximized by replacing the worst of the polluters. Further, it is urgent that we move¶ quickly to strongly and immediately control CO2 gas emissions to drastically slow global¶ warming. Clearly, the costs are not prohibitive since construction of one large stand-alone¶ pyroprocessing plant, at about 6 billion dollars, and only about 10 of the large IFR¶ powered plants, costing under 20 billion dollars, will go a long way toward strongly¶ dampening the massive production of CO2 emissions from existing electricity power plants¶ in the U.S.

## 2ac

### 2AC – Risk

#### Public debate solves fear-mongering—rejecting predictions cedes the political to technocratic planning

**Kurasawa 4** – Prof Sociology, York (Fuyuki, Cautionary Tales, Constellations 11.4, AG)

State and market institutions may seek to produce a culture of fear by deliberately stretching interpretations of reality beyond the limits of the plausible so as to exaggerate the prospects of impending catastrophes, or yet again, by intentionally promoting certain prognoses over others for instrumental purposes. Accordingly, regressive dystopias can operate as Trojan horses advancing political agendas or commercial interests that would otherwise be susceptible to public scrutiny and opposition. Instances of this kind of manipulation of the dystopian imaginary are plentiful: the invasion of Iraq in the name of fighting terrorism and an imminent threat of use of ‘weapons of mass destruction’; the severe curtailing of American civil liberties amidst fears of a collapse of ‘homeland security’; the neoliberal dismantling of the welfare state as the only remedy for an ideologically constructed fiscal crisis; the conservative expansion of policing and incarceration due to supposedly spiraling crime waves; and so forth. Alarmism constructs and codes the future in particular ways, producing or reinforcing certain crisis narratives, belief structures, and rhetorical conventions. As much as alarmist ideas beget a culture of fear, the reverse is no less true. If fear-mongering is a misappropriation of preventive foresight, resignation about the future represents a problematic outgrowth of the popular acknowledgment of global perils. Some believe that the world to come is so uncertain and dangerous that we should not attempt to modify the course of history; the future will look after itself for better or worse, regardless of what we do or wish. One version of this argument consists in a complacent optimism perceiving the future as fated to be better than either the past or the present. Frequently accompanying it is a self-deluding denial of what is plausible (‘the world will not be so bad after all’), or a naively Panglossian pragmatism (‘things will work themselves out in spite of everything, because humankind always finds ways to survive’).37 Much more common, however, is the opposite reaction, a fatalistic pessimism reconciled to the idea that the future will be necessarily worse than what preceded it. This is sustained by a tragic chronological framework according to which humanity is doomed to decay, or a cyclical one of the endless repetition of the mistakes of the past. On top of their dubious assessments of what is to come, alarmism and resignation would, if widely accepted, undermine a viable practice of farsightedness. Indeed, both of them encourage public disengagement from deliberation about scenarios for the future, a process that appears to be dangerous, pointless, or unnecessary. The resulting ‘depublicization’ of debate leaves dominant groups and institutions (the state, the market, techno-science) in charge of sorting out the future for the rest of us, thus effectively producing a heteronomous social order. How, then, can we support a democratic process of prevention from below? The answer, I think, lies in cultivating the public capacity for critical judgment and deliberation, so that participants in global civil society subject all claims about potential catastrophes to examination, evaluation, and contestation.

#### \*\*\*\*Debate is the antidote to state fear mongering—scenario planning by informed groups can counter-act official misinformation; the alternative is political apathy which hardwires governmental lies – this also internal link turns and empirically denies spf

**Kurasawa ‘4**

[Fuyuki. Prof of Sociology @ York Univ of Toronto. Constellations, Vol 11 No 4, 2004. Proquest]

State and market institutions may seek to produce a culture of fear by deliberately stretching interpretations of reality beyond the limits of the plausible so as to exaggerate the prospects of impending catastrophes, or yet again, by intentionally promoting certain prognoses over others for instrumental purposes. Accordingly, regressive dystopias can operate as Trojan horses advancing political agendas or commercial interests that would otherwise be susceptible to public scrutiny and opposition. Instances of this kind of manipulation of the dystopian imaginary are plentiful: the invasion of Iraq in the name of fighting terrorism and an imminent threat of use of ‘weapons of mass destruction’; the severe curtailing of American civil liberties amidst fears of a collapse of ‘homeland security’; the neoliberal dismantling of the welfare state as the only remedy for an ideologically constructed fiscal crisis; the conservative expansion of policing and incarceration due to supposedly spiraling crime waves; and so forth. Alarmism constructs and codes the future in particular ways, producing or reinforcing certain crisis narratives, belief structures, and rhetorical conventions. As much as alarmist ideas beget a culture of fear, the reverse is no less true. If fear-mongering is a misappropriation of preventive foresight, resignation about the future represents a problematic outgrowth of the popular acknowledgment of global perils. Some believe that the world to come is so uncertain and dangerous that we should not attempt to modify the course of history; the future will look after itself for better or worse, regardless of what we do or wish. One version of this argument consists in a complacent optimism perceiving the future as fated to be better than either the past or the present. Frequently accompanying it is a self-deluding denial of what is plausible (‘the world will not be so bad after all’), or a naively Panglossian pragmatism (‘things will work themselves out in spite of everything, because humankind always finds ways to survive’).37 Much more common, however, is the opposite reaction, a fatalistic pessimism reconciled to the idea that the future will be necessarily worse than what preceded it. This is sustained by a tragic chronological framework according to which humanity is doomed to decay, or a cyclical one of the endless repetition of the mistakes of the past. On top of their dubious assessments of what is to come, alarmism and resignation would, if widely accepted, undermine a viable practice of farsightedness. Indeed, both of them encourage public disengagement from deliberation about scenarios for the future, a process that appears to be dangerous, pointless, or unnecessary. The resulting ‘depublicization’ of debate leaves dominant groups and institutions (the state, the market, techno-science) in charge of sorting out the future for the rest of us, thus effectively producing a heteronomous social order. How, then, can we support a democratic process of prevention from below? The answer, I think, lies in cultivating the public capacity for critical judgment and deliberation, so that participants in global civil society subject all claims about potential catastrophes to examination, evaluation, and contestation.

#### Debates by non-government actors about future crises are critical to social movements—distopian visions are mobilizing transnational movements that are effectively pressuring governments into preventing nuclear annihilation

**Kurasawa ‘4**

[Fuyuki. Prof of Sociology @ York Univ of Toronto. Constellations, Vol 11 No 4, 2004. Proquest]

In the twenty-first century, the lines of political cleavage are being drawn along those of competing dystopian visions. Indeed, one of the notable features of recent public discourse and socio-political struggle is their negationist hue, for they are devoted as much to the prevention of disaster as to the realization of the good, less to what ought to be than what could but must not be. The debates that preceded the war in Iraq provide a vivid illustration of this tendency, as both camps rhetorically invoked incommensurable catastrophic scenarios to make their respective cases. And as many analysts have noted, the multinational antiwar protests culminating on February 15, 2003 marked the first time that a mass movement was able to mobilize substantial numbers of people dedicated to averting war before it had actually broken out. More generally, given past experiences and awareness of what might occur in the future, given the cries of ‘never again’ (the Second World War, the Holocaust, Bhopal, Rwanda, etc.) and ‘not ever’ (e.g., nuclear or ecological apocalypse, human cloning) that are emanating from different parts of the world, the avoidance of crises is seemingly on everyone’s lips – and everyone’s conscience. From the United Nations and regional multilateral organizations to states, from non-governmental organizations to transnational social movements, the determination to prevent the actualization of potential cataclysms has become a new imperative in world affairs. Allowing past disasters to reoccur and unprecedented calamities to unfold is now widely seen as unbearable when, in the process, the suffering of future generations is callously tolerated and our survival is being irresponsibly jeopardized. Hence, we need to pay attention to what a widely circulated report by the International Commission on Intervention and State Sovereignty identifies as a burgeoning “culture of prevention,”3 a dynamic that carries major, albeit still poorly understood, normative and political implications. Rather than bemoaning the contemporary preeminence of a dystopian imaginary, I am claiming that it can enable a novel form of transnational socio-political action, a manifestation of globalization from below that can be termed preventive foresight. We should not reduce the latter to a formal principle regulating international relations or an ensemble of policy prescriptions for official players on the world stage, since it is, just as significantly, a mode of ethico-political practice enacted by participants in the emerging realm of global civil society. In other words, what I want to underscore is the work of farsightedness, the social processes through which civic associations are simultaneously constituting and putting into practice a sense of responsibility for the future by attempting to prevent global catastrophes. Although the labor of preventive foresight takes place in varying political and socio-cultural settings – and with different degrees of institutional support and access to symbolic and material resources – it is underpinned by three distinctive features: dialogism, publicity, and transnationalism. In the first instance, preventive foresight is an intersubjective or dialogical process of address, recognition, and response between two parties in global civil society: the ‘warners,’ who anticipate and send out word of possible perils, and the audiences being warned, those who heed their interlocutors’ messages by demanding that governments and/or international organizations take measures to steer away from disaster. Secondly, the work of farsightedness derives its effectiveness and legitimacy from public debate and deliberation. This is not to say that a fully fledged global public sphere is already in existence, since transnational “strong publics” with decisional power in the formal-institutional realm are currently embryonic at best. Rather, in this context, publicity signifies that “weak publics” with distinct yet occasionally overlapping constituencies are coalescing around struggles to avoid specific global catastrophes.4 Hence, despite having little direct decision-making capacity, the environmental and peace movements, humanitarian NGOs, and other similar globally-oriented civic associations are becoming significant actors involved in public opinion formation. Groups like these are active in disseminating information and alerting citizens about looming catastrophes, lobbying states and multilateral organizations from the ‘inside’ and pressuring them from the ‘outside,’ as well as fostering public participation in debates about the future. This brings us to the transnational character of preventive foresight, which is most explicit in the now commonplace observation that we live in an interdependent world because of the globalization of the perils that humankind faces (nuclear annihilation, global warming, terrorism, genocide, AIDS and SARS epidemics, and so on); individuals and groups from far-flung parts of the planet are being brought together into “risk communities” that transcend geographical borders.5 Moreover, due to dense media and information flows, knowledge of impeding catastrophes can instantaneously reach the four corners of the earth – sometimes well before individuals in one place experience the actual consequences of a crisis originating in another. My contention is that civic associations are engaging in dialogical, public, and transnational forms of ethico-political action that contribute to the creation of a fledgling global civil society existing ‘below’ the official and institutionalized architecture of international relations. The work of preventive foresight consists of forging ties between citizens; participating in the circulation of flows of claims, images, and information across borders; promoting an ethos of farsighted cosmopolitanism; and forming and mobilizing weak publics that debate and struggle against possible catastrophes. Over the past few decades, states and international organizations have frequently been content to follow the lead of globally- minded civil society actors, who have been instrumental in placing on the public agenda a host of pivotal issues (such as nuclear war, ecological pollution, species extinction, genetic engineering, and mass human rights violations).

#### The alternative to futuristic scenario-planning is extinction

**Kurasawa ‘4**

[Fuyuki. Prof of Sociology @ York Univ of Toronto. Constellations, Vol 11 No 4, 2004. Proquest]

Independently of this contractualist justification, global civil society actors are putting forth a number of arguments countering temporal myopia on rational grounds. They make the case that no generation, and no part of the world, is immune from catastrophe. Complacency and parochialism are deeply flawed in that even if we earn a temporary reprieve, our children and grandchildren will likely not be so fortunate unless steps are taken today. Similarly, though it might be possible to minimize or contain the risks and harms of actions to faraway places over the short-term, parrying the eventual blowback or spillover effect is improbable. In fact, as I argued in the previous section, all but the smallest and most isolated of crises are rapidly becoming globalized due to the existence of transnational circuits of ideas, images, people, and commodities. Regardless of where they live, our descendants will increasingly be subjected to the impact of environmental degradation, the spread of epidemics, gross North-South socioeconomic inequalities, refugee flows, civil wars, and genocides. What may have previously appeared to be temporally and spatially remote risks are ‘coming home to roost’ in ever faster cycles. In a word, then, procrastination makes little sense for three principal reasons: it exponentially raises the costs of eventual future action; it reduces preventive options; and it erodes their effectiveness. With the foreclosing of long-range alternatives, later generations may be left with a single course of action, namely, that of merely reacting to large-scale emergencies as they arise. We need only think of how it gradually becomes more difficult to control climate change, let alone reverse it, or to halt mass atrocities once they are underway. Preventive foresight is grounded in the opposite logic, whereby the decision to work through perils today greatly enhances both the subsequent room for maneuver and the chances of success. Humanitarian, environmental, and techno-scientific activists have convincingly shown that we cannot afford not to engage in preventive labor.

#### Environmental security challenges state legitimacy and lead to a paradigm shift away from militarism

BARNETT, RESEARCH COUNCIL FELLOW IN THE SCHOOL OF SOCIAL AND ENVIRONMENTAL ENQUIRY AT THE UNIVERSITY OF MELBOURNE, 2001 [JON, THE MEANING OF ENVIRONMENTAL SECURITY: ECOLOGICAL POLITICS AND POLICY IN THE NEW SECURITY ERA, CHAPTER 9, 137-41]

The question of whether it is valid to understand environmental problems as security problems recurs throughout any thoughtful discussion of environmental security. The dilemma should by now be apparent; securitising environmental issues runs the risk that the strategic/realist approach will coopt and colonise the, environmental agenda rather than respond positively to environmental problems (as discussed in Chapter 6). For this reason critics of environmental security, such as Deudney (1991) and-Brock (1991), Suggest that it is dangerous to understand environmental problems as security issues: This book's position on the matter has been emerging in previous chapters. It contends that the problem turns not on the presentation of environmental problems as security issues, but on-the meaning and practice of security in present times. Environmental security, wittingly or not, contests the legitimacy of the realist conception of security by pointing to the contradictions of security as the defence of territory and resistance to change. It seeks to work from within the prevailing conception of security, but to be successful it must do so with a strong sense of purpose and a solid theoretical base. Understanding environmental problems as security problems is thus a form of conceptual speculation. It is one manifestation of the pressure the Green movement has exerted on states since the late 1960s. **This** pressure has pushed state legitimacy nearer to collaps**e,** for if the state cannot control a problem as elemental as environmental degradation, then what is its purpose? This legitimacy problem suggests that environmental degradation cannot further intensify without fundamental change or the collapse of the state. This in turn implies that state-sanctioned environmentally degrading practices such as those undertaken in the name of national security cannot extend their power further if it means further exacerbation of environmental insecurity. While the system may resist environmental security's challenge for change, it must also resist changes for the worse. In terms of the conceptual venture, therefore, appropriation by the security apparatus of the concept of environmental security is unlikely to result in an increase in environmental insecurity (although the concept itself may continue to be corrupted). On the other hand, succeeding in the conceptual venture may mean a positive modification of the theory and practice of national security. It may also mean that national governments will take environmental problems more seriously, reduce defence budgets, and generally implement policies for a more peaceful and environmentally secure world. This dual goal of demilitarisation and upgrading policy may well be a case of wanting to have one's cake and eat it — but either the having or the eating is sufficient justification for the concept (Brock 1996). The worst outcome would be if the state ceased to use the concept of environmental security, heralding the end of the contest and requiring that the interests of peace and the environment be advocated through alternative discourses**.** This is perhaps the only real failure that is likely to ensue from the project of environmental security.

#### Environmental reps good

Kurasawa 4– Prof Sociology, York (Fuyuki, Cautionary Tales, Constellations 11.4, AG)

And yet dystopianism need not imply despondency, paralysis, or fear. Quite the opposite, in fact, since the pervasiveness of a dystopian imaginary can help notions of historical contingency and fallibilism gain traction against their determinist and absolutist counterparts. Once we recognize that the future is uncertain and that any course of action produces both unintended and unexpected consequences, the responsibility to face up to potential disasters and intervene before they strike becomes compelling. From another angle, dystopianism lies at the core of politics in a global civil society where groups mobilize their own nightmare scenarios (‘Frankenfoods’ and a lifeless planet for environmentalists, totalitarian patriarchy of the sort depicted in Atwood’s Handmaid’s Tale for Western feminism, McWorld and a global neoliberal oligarchy for the alternative globalization movement, etc.). Such scenarios can act as catalysts for public debate and socio-political action, spurring citizens’ involvement in the work of preventive foresight.

#### They’re wrong—its key to effective movements

Dabelko 97 – director, Environmental Change and Security Project (Geoffrey, Environment and Security, SAIS Review 17.1, http://muse.jhu.edu/journals/sais\_review/v017/17.1dabelko.html)

Undoubtedly, environment and security research, rhetoric, and activities--and the sobering statistics and trenchant analyses of environment and population dynamics that accompany them--have significantly raised the profile of many environmental concerns. They have also generated many useful discussions and new ways of thinking among a diverse set of experts, including those who previously considered the environment peripheral or unimportant to their interests. At the same time, there are serious limitations to the environment and security conceptual and linguistic framework. As convincing as certain security-related arguments may be, they are not the only reasons why the American public, decisionmakers, and other nations should care about the environment. Value-oriented considerations about the aesthetics of nature, human responsibility for global stewardship, and humanitarian concerns are also important. These considerations [End Page 141] can greatly enhance the process of **formulating effective solutions and winning sustained public attention** **and support for** international **environmental action**. Policymakers might therefore be best served by framing international environmental priorities in terms of a broad set of interests, including, but not limited to, security concerns. They should resist the temptation, common in security analyses, to examine environmental problems solely in terms of crises and "threats." Though helpful in setting priorities, threat-based analyses can have the unintentional effect of encouraging decisionmakers to pay attention to issues only when crises are imminent, by which time it is often too late for effective interventions and corrective measures. Examining how environmental preservation will enhance security and other interests over time might lead decisionmakers to adopt more appropriate long-term strategies to address the underlying causes of problems. International environmental issues will be most effectively addressed in the decades to come through a combination of conceptual clarity, a pragmatic and multidisciplinary approach to problem solving, an emphasis on long-term strategies, and an improved willingness and ability among leaders to explain the complexity of environmental change. As the debates on environment and security continue, environmentalists' arguments will be strengthened if they resist the temptation to place all their priorities under the attention-grabbing security rubric. Meanwhile, skeptical foreign policy experts will benefit from recognizing the real and potential effects of environmental change and their relevance to many critical interests. As the United States considers security expenditures and priorities for the twenty-first century, the vibrant debates concerning environment and security matters will continue to be instructive.

### 2AC – Scholarship

#### Don’t be an academic—their framework dooms the alt

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Yet the audacious adepts of “theory” constitute themselves the equivalent of a vanguard party—laying out propositions to be admired for their audacity rather than their truth, defending themselves when necessary as victims of stodgy and parochial old-think, priding themselves on their cosmopolitan majesty. “Theory” dresses critical thought in a language that, for all its impenetrability, certifies that intellectuals are central and indispensable to the ideological and political future. The far right might be firmly in charge of Washington, but Foucault (and his rivals) rules the seminars. At a time of political rollback, intellectual flights feel like righteous and thrilling consolations. Masters of “theory,” left to themselves, could choose among three ways of understanding their political role. They could choose the more-or-less Leninist route, flattering themselves that they are in the process of reaching correct formulations and hence (eventually) bringing true consciousness to benighted souls who suffer from its absence. They could choose the populist path, getting themselves off the political hook in the here and now by theorizing that potent forces will **some day,** willy-nilly, gather to upend the system. Or they could reconcile themselves to Frankfurt-style futilitarianism, conceding that history has run into a cul-de-sac and making do nevertheless. In any event, practitioners of “theory” could carry on with their lives, practicing politics by publishing without perishing, indeed, without having to set foot outside the precincts of the academy. As the revolutionary tide has gone out, a vanguard marooned without a rearguard has made the university into an asylum. As many founders and masters of “theory” pass from the scene, the genre has calcified, lost much of its verve, but in the academy verve is no prerequisite for institutional weight, and so the preoccupation and the style go on and on.

#### **Complexity theory is wrong - linear solutions empirically are effective - the alternative dooms the world**

Kurasawa 4 (Professor of Sociology, York University of Toronto, Fuyuki, Constellations Volume 11, No 4, 2004).

Moreover, keeping in mind the sobering lessons of the past century cannot but make us wary about humankind’s supposedly unlimited ability for problemsolving or discovering solutions in time to avert calamities. In fact, the historical track-record of last-minute, technical ‘quick-fixes’ is hardly reassuring. What’s more, most of the serious perils that we face today (e.g., nuclear waste, climate change, global terrorism, genocide and civil war) demand complex, sustained, long-term strategies of planning, coordination, and execution. On the other hand, an examination of fatalism makes it readily apparent that the idea that humankind is doomed from the outset puts off any attempt to minimize risks for our successors, essentially condemning them to face cataclysms unprepared. An a priori pessimism is also unsustainable given the fact that long-term preventive action has had (and will continue to have) appreciable beneficial effects; the examples of medical research, the welfare state, international humanitarian law, as well as strict environmental regulations in some countries stand out among many others. The evaluative framework proposed above should not be restricted to the critique of misappropriations of farsightedness, since it can equally support public deliberation with a reconstructive intent, that is, democratic discussion and debate about a future that human beings would freely self-determine. Inverting Foucault’s Nietzschean metaphor, we can think of genealogies of the future that could perform a farsighted mapping out of the possible ways of organizing social life. They are, in other words, interventions into the present intended to facilitate global civil society’s participation in shaping the field of possibilities of what is to come. Once competing dystopian visions are filtered out on the basis of their analytical credibility, ethical commitments, and political underpinnings and consequences, groups and individuals can assess the remaining legitimate catastrophic scenarios through the lens of genealogical mappings of the future. Hence, our first duty consists in addressing the present-day causes of eventual perils, ensuring that the paths we decide upon do not contract the range of options available for our posterity.42 Just as importantly, the practice of genealogically inspired farsightedness nurtures the project of an autonomous future, one that is socially self-instituting. In so doing, we can acknowledge that the future is a human creation instead of the product of metaphysical and extra-social forces (god, nature, destiny, etc.), and begin to reflect upon and deliberate about the kind of legacy we want to leave for those who will follow us. Participants in global civil society can then take – and in many instances have already taken – a further step by committing themselves to socio-political struggles forging a world order that, aside from not jeopardizing human and environmental survival, is designed to rectify the sources of transnational injustice that will continue to inflict needless suffering upon future generations if left unchallenged.

#### Even if predictions aren’t perfect acting on relative confidence of scenarios materializing is good---the alt is etiher political paralysis or pure reaction

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If this is the best we can do, then what’s the point? Well, consider the alternatives. For starters, we might decide to skip statistical forecasting altogether and just target our interventions at cases identified by expert judgment as likely onsets. Unfortunately, those expert judgments are probably going to be an even less reliable guide than our statistical forecasts, so this “solution” only exacerbates our problem.

Alternatively, we could take no preventive action and just respond to events as they occur. If the net costs of responding to crises as they happen are roughly equivalent to the net costs of prevention, then this is a reasonable choice. Maybe responding to crises isn’t really all that costly; maybe preventive action isn’t effective; or maybe preventive action is potentially effective but also extremely expensive. Under these circumstances, early warning is not going to be as useful as we forecasters would like.

If, however, any of those last statements are false–if responding to crises already underway is very costly, or if preventive action is (relatively) cheap and sometimes effective–then we have an incentive to use forecasts to help guide that action, in spite of the lingering uncertainty about exactly where and when those crises will occur.

Even in situations where preventive action isn’t feasible or desirable, reasonably accurate forecasts can still be useful if they spur interested observers to plan for contingencies they otherwise might not have considered. For example, policy-makers in one country might be rooting for a dictatorship in another country to fall but still fail to plan for that event because they don’t expect it to happen any time soon. A forecasting model which identifies that dictatorship as being at high or increasing risk of collapse might encourage those policy-makers to reconsider their expectations and, in so doing, lead them to prepare better for that event.

Where does that leave us? For me, the bottom line is this: even though forecasts of political instability are never going to be as precise as we’d like, they can still be accurate enough to be helpful, as long as the events they predict are ones for which prevention or preparation stand a decent chance of making a (positive) difference.

#### Predictions and scenario building are valuable for decision-making, even if they’re not perfect

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http://www.acus.org/disruptive\_change/search-sand-piles-and-butterflies]

 “Disruptive change” that produces “strategic shocks” has become an increasing concern for policymakers, shaken by momentous events of the last couple of decades that were not on their radar screens – from the fall of the Berlin Wall and the 9/11 terrorist attacks to the 2008 financial crisis and the “Arab Spring.” These were all shocks to the international system, predictable perhaps in retrospect but predicted by very few experts or officials on the eve of their occurrence. This “failure” to predict specific strategic shocks does not mean we should abandon efforts to foresee disruptive change or look at all possible shocks as equally plausible. Most strategic shocks do not “come out of the blue.” We can understand and project long-term global trends and foresee at least some of their potential effects, including potential shocks and disruptive change. We can construct alternative futures scenarios to envision potential change, including strategic shocks. Based on trends and scenarios, we can take actions to avert possible undesirable outcomes or limit the damage should they occur. We can also identify potential opportunities or at least more desirable futures that we seek to seize through policy course corrections. We should distinguish “strategic shocks” that are developments that could happen at any time and yet may never occur. This would include such plausible possibilities as use of a nuclear device by terrorists or the emergence of an airborne human-to-human virus that could kill millions. Such possible but not inevitable developments would not necessarily be the result of worsening long-term trends. Like possible terrorist attacks, governments need to try to prepare for such possible catastrophes though they may never happen. But there are other potential disruptive changes, including those that create strategic shocks to the international system, that can result from identifiable trends that make them more likely in the future—for example, growing demand for food, water, energy and other resources with supplies failing to keep pace. We need to look for the “sand piles” that the trends are building and are subject to collapse at some point with an additional but indeterminable additional “grain of sand” and identify the potential for the sudden appearance of “butterflies” that might flap their wings and set off hurricanes. Mohamed Bouazizi, who immolated himself December 17, 2010 in Sidi Bouzid, Tunisia, was the butterfly who flapped his wings and (with the “force multiplier” of social media) set off a hurricane that is still blowing throughout the Middle East. Perhaps the metaphors are mixed, but the butterfly’s delicate flapping destabilized the sand piles (of rising food prices, unemployed students, corrupt government, etc.) that had been building in Tunisia, Egypt, and much of the region. The result was a sudden collapse and disruptive change that has created a strategic shock that is still producing tremors throughout the region. But the collapse was due to cumulative effects of identifiable and converging trends. When and what form change will take may be difficult if not impossible to foresee, but the likelihood of a tipping point being reached—that linear continuation of the present into the future is increasingly unlikely—can be foreseen. Foreseeing the direction of change and the likelihood of discontinuities, both sudden and protracted, is thus not beyond our capabilities. While efforts to understand and project long-term global trends cannot provide accurate predictions, for example, of the GDPs of China, India, and the United States in 2030, looking at economic and GDP growth trends, can provide insights into a wide range of possible outcomes. For example, it is a useful to assess the implications if the GDPs of these three countries each grew at currently projected average rates – even if one understands that there are many factors that can and likely will alter their trajectories. The projected growth trends of the three countries suggest that at some point in the next few decades, perhaps between 2015 and 2030, China’s GDP will surpass that of the United States. And by adding consideration of the economic impact of demographic trends (China’s aging and India’s youth bulge), there is a possibility that India will surpass both China and the US, perhaps by 2040 or 2050, to become the world’s largest economy. These potential shifts of economic power from the United States to China then to India would likely prove strategically disruptive on a global scale. Although slowly developing, such disruptive change would likely have an even greater strategic impact than the Arab Spring. The “rise” of China has already proved strategically disruptive, creating a potential China-United States regional rivalry in Asia two decades after Americans fretted about an emerging US conflict with a then-rising Japan challenging American economic supremacy. Despite uncertainty surrounding projections, foreseeing the possibility (some would say high likelihood) that China and then India will replace the United States as the largest global economy has near-term policy implications for the US and Europe. The potential long-term shift in economic clout and concomitant shift in political power and strategic position away from the US and the West and toward the East has implications for near-term policy choices. Policymakers could conclude, for example, that the West should make greater efforts to bring the emerging (or re-emerging) great powers into close consultation on the “rules of the game” and global governance as the West’s influence in shaping institutions and behavior is likely to significantly diminish over the next few decades. The alternative to finding such a near-term accommodation could be increasing mutual suspicions and hostility rather than trust and growing cooperation between rising and established powers—especially between China and the United States—leading to a fragmented, zero-sum world in which major global challenges like climate change and resource scarcities are not addressed and conflict over dwindling resources and markets intensifies and even bleeds into the military realm among the major actors. Neither of these scenarios may play out, of course. Other global trends suggest that sometime in the next several decades, the world could encounter a “hard ceiling” on resources availability and that climate change could throw the global economy into a tailspin, harming China and India even more than the United States. In this case, perhaps India and China would falter economically leading to internal instability and crises of governance, significantly reducing their rates of economic growth and their ability to project power and play a significant international role than might otherwise have been expected. But this scenario has other implications for policymakers, including dangers posed to Western interests from “failure” of China and/or India, which could produce huge strategic shocks to the global system, including a prolonged economic downturn in the West as well as the East. Thus, looking at relatively slowly developing trends can provide foresight for necessary course corrections now to avert catastrophic disruptive change or prepare to be more resilient if foreseeable but unavoidable shocks occur. Policymakers and the public will press for predictions and criticize government officials and intelligence agencies when momentous events “catch us by surprise.” But unfortunately, as both Yogi Berra and Neils Bohr are credited with saying, “prediction is very hard, especially about the future.” One can predict with great accuracy many natural events such as sunrise and the boiling point of water at sea level. We can rely on the infallible predictability of the laws of physics to build airplanes and automobiles and iPhones. And we can calculate with great precision the destruction footprint of a given nuclear weapon. Yet even physical systems like the weather as they become more complex, become increasingly difficult and even inherently impossible to predict with precision. With human behavior, specific predictions are not just hard, but impossible as uncertainty is inherent in the human universe. As futurist Paul Saffo wrote in the Harvard Business Review in 2007, “prediction is possible only in a world in which events are preordained and no amount of actions in the present can influence the future outcome.” One cannot know for certain what actions he or she will take in the future much less the actions of another person, a group of people or a nation state. This obvious point is made to dismiss any idea of trying to “predict” what will occur in the future with accuracy, especially the outcomes of the interplay of many complex factors, including the interaction of human and natural systems. More broadly, the human future is not predetermined but rather depends on human choices at every turning point, cumulatively leading to different alternative outcomes. This uncertainty about the future also means the future is amenable to human choice and leadership. Trends analyses—including foreseeing trends leading to disruptive change—are thus essential to provide individuals, organizations and political leaders with the strategic foresight to take steps mitigate the dangers ahead and seize the opportunities for shaping the human destiny. Peter Schwartz nearly a decade ago characterized the convergence of trends and disruptive change as “inevitable surprises.” He wrote in Inevitable Surprises that “in the coming decades we face many more inevitable surprises: major discontinuities in the economic, political and social spheres of our world, each one changing the ‘rules of the game’ as its played today. If anything, there will be more, no fewer, surprises in the future, and they will all be interconnected. Together, they will lead us into a world, ten to fifteen years hence, that is fundamentally different from the one we know today. Understanding these inevitable surprises in our future is critical for the decisions we have to make today …. We may not be able to prevent catastrophe (although sometimes we can), but we can certainly increase our ability to respond, and our ability to see opportunities that we would otherwise miss.

#### Focusing on deliberation in the debate forum challenges elite hold to power, and maintains critical perspective

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(Carol J., “Democratizing Technology: Citizen & State in West German Energy Politics, 1974-1990” *Polity*, Vol. 25, No. 1, p. 45-70)

During this phase, the citizen initiative attempted to overcome its defensive posture and implement an alternative politics. The strategy of legal and technical challenge might delay or even prevent plant construction, but it would not by itself accomplish the broader goal on the legitimation dimension, i.e., democratization. Indeed, it worked against broad participation. The activists had to find a viable means of achieving change. Citizens had proved they could contribute to a substantive policy discussion. Now, some activists turned to the parliamentary arena as a possible forum for an energy dialogue. Until now, parliament had been conspicuously absent as a relevant policy maker, but if parliament could be reshaped and activated, citizens would have a forum in which to address the broad questions of policy-making goals and forms. They would also have an institutional lever with which to pry apart the bureaucracy and utility. None of the established political parties could offer an alternative program. Thus, local activists met to discuss forming their own voting list.

These discussions provoked internal dissent. Many citizen initiative members objected to the idea of forming a political party. If the problem lay in the role of parliament itself, another political party would not solve it. On the contrary, parliamentary participation was likely to destroy what political innovations the extraparliamentary movement had made. Others argued that a political party would give the movement an institutional platform from which to introduce some of the grassroots democratic political forms the groups had developed. Founding a party as the parliamentary arm of the citizen movement would allow these groups to play an active, critical role in institutionalized politics, participating in the policy debates while retaining their outside perspective. Despite the disagreements, the Alternative List for Democracy and Environmental Protection Berlin (AL) was formed in 1978 and first won seats in the Land parliament with 7.2 percent of the vote in 1981.43 The founders of the AL were encouraged by the success of newly formed local green parties in Lower Saxony and Hamburg,44 whose evolution had been very similar to that of the West Berlin citizen move-ment. Throughout the FRG, unpopular administrative decisions affect-ing local environments, generally in the form of state-sponsored indus-trial projects, prompted the development of the citizen initiative and ecology movements. The groups in turn focused constant attention on state planning "errors," calling into question not only the decisions themselves, but also the conventional forms of political decision making that produced them.45 Disgruntled citizens increasingly aimed their critique at the established political parties, in particular the federal SPD/ FDP coalition, which seemed unable to cope with the economic, social, and political problems of the 1970s. Fanned by publications such as the Club of Rome's report, "The Limits to Growth," the view spread among activists that the crisis phenomena were not merely a passing phase, but indicated instead "a long-term structural crisis, whose cause lies in the industrial-technocratic growth society itself."46 As they broadened their critique to include the political system as a whole, many grassroots groups found the extraparliamentary arena too restrictive. Like many in the West Berlin group, they reasoned that the necessary change would require a degree of political restructuring that could only be accomplished through their direct participation in parliamentary politics. Green/alternative parties and voting lists sprang up nationwide and began to win seats in local assemblies. The West Berlin Alternative List saw itself not as a party, but as the parliamentary arm of the citizen initiative movement. One member explains: "the starting point for alternative electoral participation was simply the notion of achieving a greater audience for [our] own ideas and thus to work in support of the extraparliamentary movements and initia-tives,"47 including non-environmentally oriented groups. The AL wanted to avoid developing structures and functions autonomous from the citizen initiative movement. Members adhered to a list of principles, such as rotation and the imperative mandate, designed to keep parliamentarians attached to the grassroots. Although their insistence on grassroots democracy often resulted in interminable heated discussions, the participants recognized the importance of experimenting with new forms of decision making, of not succumbing to the same hierarchical forms they were challenging. Some argued that the proper role of citizen initiative groups was not to represent the public in government, but to mobilize other citizens to participate directly in politics themselves; self-determination was the aim of their activity.48

Once in parliament, the AL proposed establishmento f a temporary parliamentaryco mmissiont o studye nergyp olicy,w hichf or the first time would draw all concernedp articipantst ogetheri n a discussiono f both short-termc hoicesa nd long-termg oals of energyp olicy. With help from the SPD faction, which had been forced into the opposition by its defeat in the 1981 elections, two such commissions were created, one in 1982-83 and the other in 1984-85.49T hese commissionsg ave the citizen activists the forum they sought to push for modernizationa nd technicali nnovation in energy policy.

Although it had scaled down the proposed new plant, the utility had produced no plan to upgrade its older, more polluting facilities or to install desulfurizationd evices. With proddingf rom the energyc ommission, Land and utility experts began to formulate such a plan, as did the citizen initiative. By exposing administrative failings in a public setting, and by producing a modernization plan itself, the combined citizen initiative and AL forced bureaucratic authorities to push the utility for improvements. They also forced the authorities to consider different technological solutions to West Berlin's energy and environmental problems. In this way, the activists served as technological innovators. In 1983, the first energy commission submitted a list of recommendations to the Land parliament which reflected the influence of the citizen protest movement. It emphasized goals of demand reduction and efficiency, noted the value of expanded citizen participation and urged authorities to "investigate more closely the positive role citizen participation can play in achieving policy goals."50 The second energy commission was created in 1984 to discuss the possibilities for modernization and shutdown of old plants and use of new, environmentally friendlier and cheaper technologies for electricity and heat generation. Its recommendations strengthened those of the first commission.51 Despite the non-binding nature of the commissions' recommendations, the public discussion of energy policy motivated policy makers to take stronger positions in favor of environmental protection.

III. Conclusion

The West Berlin energy project eventually cleared all planning hurdles, and construction began in the early 1980s. The new plant now conforms to the increasingly stringent environmental protection requirements of the law. The project was delayed, scaled down from 1200 to 600 MW, moved to a neutral location and, unlike other BEWAG plants, equipped with modern desulfurization devices. That the new plant, which opened in winter 1988-89, is the technologically most advanced and environmen-tally sound of BEWAG's plants is due entirely to the long legal battle with the citizen initiative group, during which nearly every aspect of the original plans was changed. In addition, through the efforts of the Alter-native List (AL) in parliament, the Land government and BEWAG formulated a long sought modernization and environmental protection plan for all of the city's plants. The AL prompted the other parliamentary parties to take pollution control seriously. Throughout the FRG, energy politics evolved in a similar fashion. As Habermas claimed, underlying the objections against particular projects was a reaction against the administrative-economic system in general.

One author, for example, describes the emergence of two-dimensional protest against nuclear energy: The resistance against a concrete project became understood simul-taneously as resistance against the entire atomic program. Questions of energy planning, of economic growth, of understanding of democracy entered the picture. . . . Besides concern for human health, for security of conditions for human existence and protec-tion of nature arose critique of what was perceived as undemocratic planning, the "shock" of the delayed public announcement of pro-ject plans and the fear of political decision errors that would aggra-vate the problem.52 This passage supports a West Berliner's statement that the citizen initiative began with a project critique and arrived at *Systemkritik*.53 I have labeled these two aspects of the problem the public policy and legitima-tion dimensions. In the course of these conflicts, the legitimation dimen-sion emergd as the more important and in many ways the more prob-lematic.

Parliamentary Politics

In the 1970s, energy politics began to develop in the direction Offe de-scribed, with bureaucrats and protesters avoiding the parliamentary channels through which they should interact. The citizen groups them-selves, however, have to a degree reversed the slide into irrelevance of parliamentary politics. Grassroots groups overcame their defensive posture enough to begin to formulate an alternative politics, based upon concepts such as decision making through mutual understanding rather than technical criteria or bargaining. This new politics required new modes of interaction which the old corporatist or pluralist forms could not provide. Through the formation of green/alternative parties and voting lists and through new parliamentary commissions such as the two described in the case study, some members of grassroots groups attempted to both operate within the political system and fundamentally change it, to restore the link between bureaucracy and citizenry.

Parliamentary politics was partially revived in the eyes of West German grassroots groups as a legitimate realm of citizen participation, an outcome the theory would not predict. It is not clear, however, that strengthening the parliamentary system would be a desirable outcome for everyone. Many remain skeptical that institutions that operate as part of the "system" can offer the kind of substantive participation that grass-roots groups want. The constant tension between institutionalized politics and grassroots action emerged clearly in the recent internal debate between "fundamentalist" and "realist" wings of the Greens. Fundis wanted to keep a firm footing outside the realm of institutionalized politics. They refused to bargain with the more established parties or to join coalition governments. Realos favored participating in institutionalized politics while pressing their grassroots agenda. Only this way, they claimed, would they have a chance to implement at least some parts of their program.

This internal debate, which has never been resolved, can be interpreted in different ways. On one hand, the tension limits the appeal of green and alternative parties to the broader public, as the Greens' poor showing in the December 1990 all-German elections attests. The failure to come to agreement on basic issues can be viewed as a hazard of grass-roots democracy. The Greens, like the West Berlin citizen initiative, are opposed in principle to forcing one faction to give way to another. Disunity thus persists within the group. On the other hand, the tension can be understood not as a failure, but as a kind of success: grassroots politics has not been absorbed into the bureaucratized system; it retains its critical dimension, both in relation to the political system and within the groups themselves. The lively debate stimulated by grassroots groups and parties keeps questions of democracy on the public agenda.

Technical Debate

In West Berlin, the two-dimensionality of the energy issue forced citizen activists to become both participants in and critics of the policy process. In order to defeat the plant, activists engaged in technical debate. They won several decisions in favor of environmental protection, often proving to be more informed than bureaucratic experts themselves. The case study demonstrates that grassroots groups, far from impeding techno-logical advancement, can actually serve as technological innovators.

The activists' role as technical experts, while it helped them achieve some success on the policy dimension, had mixed results on the legitimation dimension. On one hand, it helped them to challenge the legitimacy of technocratic policy making. They turned back the Land government's attempts to displace political problems by formulating them in technical terms.54 By demonstrating the fallibility of the technical arguments, activists forced authorities to acknowledge that energy demand was a political variable, whose value at any one point was as much influenced by the choices of policy makers as by independent technical criteria.

Submission to the form and language of technical debate, however, weakened activists' attempts to introduce an alternative, goal-oriented form of decision making into the political system. Those wishing to par-ticipate in energy politics on a long-term basis have had to accede to the language of bureaucratic discussion, if not the legitimacy of bureaucratic authorities. They have helped break down bureaucratic authority but have not yet offered a viable long-term alternative to bureaucracy. In the tension between form and language, goals and procedure, the legitima-tion issue persists. At the very least, however, grassroots action challenges critical theory's notion that technical discussion is inimical to democratic politics.55 Citizen groups have raised the possibility of a dialogue that is both technically sophisticated and democratic.

In sum, although the legitimation problems which gave rise to grass-roots protest have not been resolved, citizen action has worked to counter the marginalization of parliamentary politics and the technocratic character of policy debate that Offe and Habermas identify. The West Berlin case suggests that the solutions to current legitimation problems may not require total repudiation of those things previously associated with technocracy.56

In Berlin, the citizen initiative and AL continue to search for new, more legitimate forms of organization consistent with their principles. No permanent Land parliamentary body exists to coordinate and con-solidate energy policy making.57 In the 1989 Land elections, the CDU/ FDP coalition was defeated, and the AL formed a governing coalition with the SPD. In late 1990, however, the AL withdrew from the coali-tion. It remains to be seen whether the AL will remain an effective vehi-cle for grassroots concerns, and whether the citizenry itself, now includ-ing the former East Berliners, will remain active enough to give the AL direction as united Berlin faces the formidable challenges of the 1990s. On the policy dimension, grassroots groups achieved some success. On the legitimation dimension, it is difficult to judge the results of grass-roots activism by normal standards of efficacy or success. Activists have certainly not radically restructured politics. They agree that democracy is desirable, but troublesome questions persist about the degree to which those processes that are now bureaucratically organized can and should be restructured, where grassroots democracy is possible and where bureaucracy is necessary in order to get things done. In other words, grassroots groups have tried to remedy the Weberian problem of the marginalization of politics, but it is not yet clear what the boundaries of the political realm should be. It is, however, the act of calling existing boundaries into question that keeps democracy vital. In raising alternative possibilities and encouraging citizens to take an active, critical role in their own governance, the contribution of grassroots environmental groups has been significant. As Melucci states for new social movements in general, these groups mount a "symbolic" challenge by proposing "a different way of perceiving and naming the world."58 Rochon concurs for the case of the West German peace movement, noting that its effect on the public discussion of secur-ity issues has been tremendous.59 The effects of the legitimation issue in the FRG are evident in increased citizen interest in areas formerly left to technical experts. Citizens have formed nationwide associations of environmental and other grassroots groups as well as alternative and green parties at all levels of government. The level of information within the groups is generally quite high, and their participation, especially in local politics, has raised the awareness and engagement of the general populace noticeably.60 Policy concessions and new legal provisions for citizen participation have not quelled grassroots action. The attempts of the established political parties to coopt "green" issues have also met with limited success. Even green parties themselves have not tapped the full potential of public support for these issues. The persistence of legitima-tion concerns, along with the growth of a culture of informed political activism, will ensure that the search continues for a space for a delibera-tive politics in modern technological society.61

### 2AC – Energy Justice

#### Nuke war outweighs structural violence – prioritizing structural violence makes preventing war impossible

Boulding 78 [Ken, is professor of economics and director, Center for Research on Conflict Resolution, University of Michigan, “Future Directions in Conflict and Peace Studies,” The Journal of Conflict Resolution, Vol. 22, No. 2 (Jun., 1978), pp. 342-354]

Galtung is very legitimately interested in problems of world poverty and the failure of development of the really poor. He tried to amalga- mate this interest with the peace research interest in the more narrow sense. Unfortunately, he did this by downgrading the study of inter- national peace, labeling it "negative peace" (it should really have been labeled "negative war") and then developing the concept of "structural violence," which initially meant all those social structures and histories which produced an expectation of life less than that of the richest and longest-lived societies. He argued by analogy that if people died before the age, say, of 70 from avoidable causes, that this was a death in "war"' which could only be remedied by something called "positive peace." Unfortunately, the concept of structural violence was broadened, in the word of one slightly unfriendly critic, to include anything that Galtung did not like. Another factor in this situation was the feeling, certainly in the 1960s and early 1970s, that nuclear deterrence was actually succeeding as deterrence and that the problem of nuclear war had receded into the background. This it seems to me is a most dangerous illusion and diverted conflict and peace research for ten years or more away from problems of disarmament and stable peace toward a grand, vague study of world developments, for which most of the peace researchers are not particularly well qualified. To my mind, at least, the quality of the research has suffered severely as a result.' The complex nature of the split within the peace research community is reflected in two international peace research organizations. The official one, the International Peace Research Association (IPRA), tends to be dominated by Europeans somewhat to the political left, is rather, hostile to the United States and to the multinational cor- porations, sympathetic to the New International Economic Order and thinks of itself as being interested in justice rather than in peace. The Peace Science Society (International), which used to be called the Peace Research Society (International), is mainly the creation of Walter Isard of the University of Pennsylvania. It conducts meetings all around the world and represents a more peace-oriented, quantitative, science- based enterprise, without much interest in ideology. COPRED, while officially the North American representative of IPRA, has very little active connection with it and contains within itself the same ideological split which, divides the peace research community in general. It has, however, been able to hold together and at least promote a certain amount of interaction between the two points of view. Again representing the "scientific" rather than the "ideological" point of view, we have SIPRI, the Stockholm International Peace Research Institute, very generously (by the usual peace research stand- ards) financed by the Swedish government, which has performed an enormously useful service in the collection and publishing of data on such things as the war industry, technological developments, arma- ments, and the arms trade. The Institute is very largely the creation of Alva Myrdal. In spite of the remarkable work which it has done, how- ever, her last book on disarmament (1976) is almost a cry of despair over the folly and hypocrisy of international policies, the overwhelming power of the military, and the inability of mere information, however good, go change the course of events as we head toward ultimate ca- tastrophe. I do not wholly share her pessimism, but it is hard not to be a little disappointed with the results of this first generation of the peace research movement. Myrdal called attention very dramatically to the appalling danger in which Europe stands, as the major battleground between Europe, the United States, and the Soviet Union if war ever should break out. It may perhaps be a subconscious recognition-and psychological denial-of the sword of Damocles hanging over Europe that has made the European peace research movement retreat from the realities of the international system into what I must unkindly describe as fantasies of justice. But the American peace research community, likewise, has retreated into a somewhat niggling scientism, with sophisticated meth- odologies and not very many new ideas. I must confess that when I first became involved with the peace research enterprise 25 years ago I had hopes that it might produce some- thing like the Keynesian revolution in economics, which was the result of some rather simple ideas that had never really been thought out clearly before (though they had been anticipated by Malthus and others), coupled with a substantial improvement in the information system with the development of national income statistics which rein- forced this new theoretical framework. As a result, we have had in a single generation a very massive change in what might be called the "conventional wisdom" of economic policy, and even though this conventional wisdom is not wholly wise, there is a world of difference between Herbert Hoover and his total failure to deal with the Great Depression, simply because of everybody's ignorance, and the moder- ately skillful handling of the depression which followed the change in oil prices in 1-974, which, compared with the period 1929 to 1932, was little more than a bad cold compared with a galloping pneumonia. In the international system, however, there has been only glacial change in the conventional wisdom. There has been some improvement. Kissinger was an improvement on John Foster Dulles. We have had the beginnings of detente, and at least the possibility on the horizon of stable peace between the United States and the Soviet Union, indeed in the whole temperate zone-even though the tropics still remain uneasy and beset with arms races, wars, and revolutions which we cannot really afford. Nor can we pretend that peace around the temper- ate zone is stable enough so that we do not have to worry about it. The qualitative arms race goes on and could easily take us over the cliff. The record of peace research in the last generation, therefore, is one of very partial success. It has created a discipline and that is something of long-run consequence, most certainly for the good. It has made very little dent on the conventional wisdom of the policy makers anywhere in the world. It has not been able to prevent an arms race, any more, I suppose we might say, than the Keynesian economics has been able to prevent inflation. But whereas inflation is an inconvenience, the arms race may well be another catastrophe. Where, then, do we go from here? Can we see new horizons for peace and conflict research to get it out of the doldrums in which it has been now for almost ten years? The challenge is surely great enough. It still remains true that war, the breakdown of Galtung's "negative peace," remains the greatest clear and present danger to the human race, a danger to human survival far greater than poverty, or injustice, or oppression, desirable and necessary as it is to eliminate these things. Up to the present generation, war has been a cost and an inconven- ience to the human race, but it has rarely been fatal to the process of evolutionary development as a whole. It has probably not absorbed more than 5% of human time, effort, and resources. Even in the twenti- eth century, with its two world wars and innumerable smaller ones, it has probably not acounted for more than 5% of deaths, though of course a larger proportion of premature deaths. Now, however, advancing technology is creating a situation where in the first place we are developing a single world system that does not have the redundancy of the many isolated systems of the past and in which therefore if any- thing goes wrong everything goes wrong. The Mayan civilization could collapse in 900 A.D., and collapse almost irretrievably without Europe or China even being aware of the fact. When we had a number of iso- lated systems, the catastrophe in one was ultimately recoverable by migration from the surviving systems. The one-world system, therefore, which science, transportation, and communication are rapidly giving us, is inherently more precarious than the many-world system of the past. It is all the more important, therefore, to make it internally robust and capable only of recoverable catastrophes. The necessity for stable peace, therefore, increases with every improvement in technology, either of war or of peacex

#### War turns structural violence not vice versa

**Goldstein 2001** – IR professor at American University (Joshua, War and Gender, p. 412, Google Books)

First, peace activists face a dilemma in thinking about causes of war and working for peace. Many peace scholars and activists support the approach, “if you want peace, work for justice.” Then, if one believes that sexism contributes to war, one can work for gender justice specifically (perhaps. among others) in order to pursue peace. This approach brings strategic allies to the peace movement (women, labor, minorities), but rests on the assumption that injustices cause war. The evidence in this book suggests that causality runs at least as strongly the other way. War is not a product of capitalism, imperialism, gender, innate aggression, or any other single cause, although all of these influence wars’ outbreaks and outcomes. Rather, war has in part fueled and sustained these and other injustices.9 So, “if you want peace, work for peace.” Indeed, if you want justice (gender and others), work for peace. Causality does not run just upward through the levels of analysis, from types of individuals, societies, and governments up to war. It runs downward too. Enloe suggests that changes in attitudes towards war and the military may be the most important way to “reverse women’s oppression.” The dilemma is that peace work focused on justice brings to the peace movement energy, allies, and moral grounding, yet, in light of this book’s evidence, the emphasis on injustice as the main cause of war seems to be empirically inadequate.

#### Prefer util

Cummiskey 90 – Professor of Philosophy, Bates (David, Kantian Consequentialism, Ethics 100.3, p 601-2, p 606, jstor, AG)

We must not obscure the issue by characterizing this type of case as the sacrifice of individuals for some abstract "social entity." It is not a question of some persons having to bear the cost for some elusive "overall social good." Instead, the question is whether some persons must bear the inescapable cost for the sake of other persons. Nozick, for example, argues that "to use a person in this way does not sufficiently respect and take account of the fact that he is a separate person, that his is the only life he has."30 Why, however, is this not equally true of all those that we do not save through our failure to act? By emphasizing solely the one who must bear the cost if we act, one fails to sufficiently respect and take account of the many other separate persons, each with only one life, who will bear the cost of our inaction. In such a situation, what would a conscientious Kantian agent, an agent motivated by the unconditional value of rational beings, choose? We have a duty to promote the conditions necessary for the existence of rational beings, but both choosing to act and choosing not to act will cost the life of a rational being. Since the basis of Kant's principle is "rational nature exists as an end-in-itself' (GMM, p. 429), the reasonable solution to such a dilemma involves promoting, insofar as one can, the conditions necessary for rational beings. If I sacrifice some for the sake of other rational beings, I do not use them arbitrarily and I do not deny the unconditional value of rational beings. **Persons** may **have "dignity**, an unconditional and incomparable value" that transcends any market value (GMM, p. 436), **but**, as rational beings, persons **also** have **a fundamental equality which dictates that some must** sometimes **give way for the sake of others.** The formula of the end-in-itself thus does not support the view that we may never force another to bear some cost in order to benefit others. If one focuses on the equal value of all rational beings, then equal consideration dictates that one sacrifice some to save many. [continues] According to Kant, the objective end of moral action is the existence of rational beings. Respect for rational beings requires that, in deciding what to do, one give appropriate practical consideration to the unconditional value of rational beings and to the conditional value of happiness. Since agent-centered constraints require a non-value-based rationale, the most natural interpretation of the demand that one give equal respect to all rational beings lead to a consequentialist normative theory. We have seen that there is no sound Kantian reason for abandoning this natural consequentialist interpretation. In particular, a consequentialist interpretation does not require sacrifices which a Kantian ought to consider unreasonable, and it does not involve doing evil so that good may come of it. It simply requires an uncompromising commitment to the equal value and equal claims of all rational beings and a recognition that, in the moral consideration of conduct, one's own subjective concerns do not have overriding importance.

## 1ar

### 1AR – Risk

#### Debate link turns their cynicism

**Coverstone, 05** – masters in communication from Wake Forest and longtime debate coach

(Alan H., “Acting on Activism: Realizing the Vision of Debate with Pro-social Impact,” Paper presented at the National Communication Association Annual Conference, 11/17/05)

Acting on Activism

We need both strategic sense and insider savvy. Debaters who already shift easily between the technical field of the policy wonks and the rarified air of the ivory tower ought also to move easily in the public sphere. With some intentional effort by coaches, students will discover how easily they can enter this realm. Here again, however, some preparatory training is required. This training is easy, and public debates on campus, before parents, in the community and even as part of debate tournaments offer incredible starting points. Student engagement with authors and political leaders, meetings with social activists, and encounters with people whose lives are impacted by the policies and ideas they debate all offer incredible opportunities not to replace contest debating as it is so productively practiced but to supplement its training with a tangible training in public advocacy. Such training will ease the transition from contest debater to public citizen. Mitchell has advanced numerous tangible examples of political activism by debaters, and none of these required reflexive fiat (1998a; Mitchell & Suzuki, 2004). Debaters who participate in community service projects as a part of their commitment to the contest debate program at their school will not only learn to be socially conscious and capable public advocates, they will also become more competitively persuasive and successful contest debaters. Linking these aims offers the best chance to expand the magic of competitive debate rather than supplanting it in favor of risky strategies that may well upset the balance that makes debate so resilient.

# Round 7 Aff v Wake BM

## 2AC

### NNSA Tradeoff DA

#### NNSA is actually terrible and incapable of solving anything – government review – also their cards explaining why they’ve failed are Michael Scott-level excuses

**Oak Ridge Environmental Alliance** 12 [Sep 11, 2012, “OREPA calls for Abolition of NNSA, cites numerous government”, nonprofit organization, Larry Coleman, Shelley Wascom, Barbara Hickey, President, government watchdog organization]

The National Nuclear Security Administration, responsible for managing the nation’s nuclear weapons stockpile and the facilities which engineer, design, produce and test nuclear warheads, has failed to provide significant “value added” to the federal government since its founding in 2000. Instead, NNSA management incompetence has resulted in massive budget overruns and consistent failure to meet schedules on major construction projects. NNSA failure to provide rigorous oversight of operating contractors at weapons sites has led to breakdowns in basic security operations. NNSA has been the target of remarkable criticisms by the General Accounting Office and the Defense Nuclear Facilities Safety Board, including a remarkable summary of mismanagement on safety, funding, contractor oversight, and project management incompetence released on Tuesday, September 12, 2012 by the GAO in its testimony before Congress. Aside from an occasional personnel shuffle and a rigorous effort to shift blame to contractors, NNSA’s response to criticisms is consistently, “We get it now, we’re compiling lessons learned, we’ll do better.”

#### Disease can’t cause extinction – it’s genetically impossible

Richard **Posner**, Senior Lecturer in Law at the University of Chicago, judge on the United States Court of Appeals for the Seventh Circuit, January 1, **2005,** Skeptic, “Catastrophe: the dozen most significant catastrophic risks and what we can do about them,” <http://goliath.ecnext.com/coms2/gi_0199-4150331/Catastrophe-the-dozen-most-significant.html#abstract>

Yet the fact that Homo sapiens has managed to survive every disease to assail it in the 200,000 years or so of its existence is a source of genuine comfort, at least if the focus is on extinction events. There have been enormously destructive plagues, such as the Black Death, smallpox, and now AIDS, but none has come close to destroying the entire human race. There is a biological reason. Natural selection favors germs of limited lethality; they are fitter in an evolutionary sense because their genes are more likely to be spread if the germs do not kill their hosts too quickly. The AIDS virus is an example of a lethal virus, wholly natural, that by lying dormant yet infectious in its host for years maximizes its spread. Yet there is no danger that AIDS will destroy the entire human race. The likelihood of a natural pandemic that would cause the extinction of the human race is probably even less today than in the past (except in prehistoric times, when people lived in small, scattered bands, which would have limited the spread of disease), despite wider human contacts that make it more difficult to localize an infectious disease. The reason is improvements in medical science. But the comfort is a small one. Pandemics can still impose enormous losses and resist prevention and cure: the lesson of the AIDS pandemic. And there is always a lust time.

#### The plan solves -- building new nuclear plants attracts labor.

Howard, ‘7

[Angie, Vice President -- Nuclear Energy Institute, 2-5, “Achieving Excellence in Human Performance: Nuclear Energy Training and Education”, <http://www.nei.org/newsandevents/speechesandtestimony/2007/americannuclearsocietyextended>]

Yes, we do have a looming workforce crisis. The average age of employees in the industry is 48 years—one of the oldest of any major industries in the country. Retirement and attrition will create the need to essentially re-staff the existing fleet over the next 10 years. We need to get the younger generation into the industry. But the industry is hiring, and we have employment opportunities that are attractive to talented young people, both in the craft and in the professional engineering and management fields. Research among college engineering students has shown that the prospect of building new plants is the single most important factor in attracting new talent to the nuclear energy industry. Social responsibility, creativity, learning opportunities, compensation—these are the other priorities when young people look for in a career today.

### AT: Hypocrisy – Credibility Dumb

#### Empirically this argument is completely false

**Ford 9** [“Nuclear Disarmament, ¶ Nonproliferation, ¶ and the “Credibility ¶ Thesis”, Christopher Ford, September 2009, senior fellow and director of the Center for Technology and ¶ Global Security at Hudson Institute¶ U.S. special representative for ¶ nuclear nonproliferation¶ principal deputy assistant ¶ secretary of state for verification, compliance]

Strikingly, these various proliferation challenges—and the sad and all-too-often ¶ willful limpness of the international community’s response—all took place during a ¶ period of extraordinary nuclear weapons reductions by the United States and Russia. ¶ These reductions have already been described, but the point bears re-emphasizing: These ¶ problems with proliferation, and an international community unwilling to address them ¶ effectively, occurred when the nuclear superpowers were making massive and ¶ unprecedented reductions in their nuclear weapons holdings. What does this tell us about ¶ the purported link between disarmament credibility and the international community’s ¶ willingness to bear burdens in support of nonproliferation? ¶ To put it gently, the historical record offers little support for the credibility thesis. ¶ (If anything, it could be said to point in the opposite direction. While one should certainly ¶ always be careful about asserting a causal connection between succeeding events, it is ¶ certainly possible to imagine skeptics advancing a counter-argument—with at least as ¶ much facial plausibility—that this history suggests that the interests of nonproliferation ¶ might be better served by the maintenance of robust superpower arsenals!) Under the ¶ circumstances, what is perhaps most remarkable about the credibility thesis is that anyone ¶ dares to advance it at all. ¶ A

### Renewables Tradeoff 2AC – Shorter\

#### No investment or solvency for renewables now

Floyd, 9/28/12 [The Gadsden Times, director of United Kingdom manufacturing, Goodyear Tire & Rubber Co., vice president of manufacturing and international operations, General Tire & Rubber Co., and director of manufacturing, Chrysler Corp, <http://www.gadsdentimes.com/article/20120928/NEWS/120929802>]

Energy contributions by solar and wind to the U.S. power grid are miniscule when compared to coal, oil and gas, hydro and nuclear. In addition, the renewable energies are not cost effective and it is doubtful they will be.¶ In a recent article in The Gadsden Times, a writer complained that one of the major issues for wind and solar was states lagging in incentives for solar and wind. ¶ Was the writer joking, or did he not understand that huge governmental subsidies for solar and wind power come from taxpayer dollars? ¶ The U.S. Department of Energy reported that federal subsidies for solar are $775 per megawatt hour and for wind $57 per megawatt hour. Conversely, subsidies for oil and gas are $0.64 cents per megawatt hour, hydro power was $0.82 cents, coal $0.64 cents and nuclear $3.14 per megawatt hour. The difference in the subsidy for wind and solar versus traditional energy sources is obscene.¶ In 2011 the wind turbine industry received $5 billion in subsidies, in spite of the fact it produced only 2.3 percent of the total energy used in the United States. ¶ The Wall Street Journal reported in its Aug. 18 opinion page that for every tax dollar that goes to coal, oil and natural gas, wind gets $88 and solar $1,212. Subsidy comparisons don’t consider that the oil, coal,and natural gas industries paid more than $10 billion in taxes in 2009. Wind and solar are net drains on the United States Treasury.¶ The Journal suggested that maybe it is time to eliminate all federal subsidy programs for the energy industry. This is a proposal that should be taken very seriously. Why subsidize industries that historically generate huge profits? ¶ An Indiana newspaper reported that the company E-on Climate & Renewables is in a race against time for construction of 125 wind turbines in the Tipton, Ind., area. E-on is concerned federal subsidies they now enjoy will expire at the end of 2012. That’s unlikely because subsidies for wind and solar have been around since 1992 and have been extended seven times.¶ E-on has stated that each wind turbine will generate enough electrical power for 350 homes. So it would follow that 125 turbines will generate enough power to supply 43,750 homes. This is more than enough electrical power for all of Tipton and Kokomo, Ind.¶ The problem is the cost of the power. If the two communities had to pay for the power without taxpayer help, it would bankrupt every family living in the two communities.¶ What about times when there is no wind to power the turbines? Would these communities have to supplement electrical needs with power from alternative sources?¶ As utilization goes down for traditional electrical suppliers, unit costs go up. This means that alternative power supplied by traditional sources would also increase in cost. Tipton and Kokomo would be caught in a “Catch 22.” Implementation of wind turbines is a loser for the American taxpayer until the supplies of coal, natural gas and oil are depleted. Even then new nuclear power plants could supply 90 percent or more of the United States demand. ¶ Wind farms are “feel-good projects” with enormous associated costs to the American taxpayer. For irrelevance, wind farms are only exceeded by the solar industry. Sometimes, it is not good to be No. 1. ¶ To answer the question are American taxpayers lagging in incentives for renewable energy sources? I don’t think so.¶ I understand startup costs and the time it takes to establish appropriate operating numbers. Wind and solar power are far removed from the realm of cost effectiveness. ¶ There is much doubt wind and solar will be more than a drop in the ocean in relation to contributing to power requirements for the United States.

#### No tradeoff and risk of a link turn

Scandurra and Romano ‘11

(Giuseppe and Antonio Angelo, Department of Statistical Mathematics and Economics at the University of Napoli, “The investments in renewable energy sources: do low carbon economies better invest in green technologies?”, Munich Personal RePEc Archive, 2011, http://mpra.ub.uni-muenchen.de/34216/2/MPRA\_paper\_34216.pdf)

If it can have some statistical significance, the estimates in the low carbon economies are generally higher, in absolute value, than in the high carbon sample, except the autoregressive parameters. In fact, the influence of investments in renewable energy source is stronger in the high carbon countries than to the other countries (low carbon). The former try to invest mostly in renewable sources in order to reduce their footprint and respect the international agreement that they ratified. Significant is the inverse relationship between renewable investments and share of nuclear consumption. Probably, the continuous base load electricity ensured by nuclear power plants and the absence of greenhouse gas emission allow these countries to invest in additional renewable energy in a complementary way, in order to reach an optimal energy mix and to ensure the subsidies for investment in renewable energy.

### AT: Timeframe 2AC

#### We can build them really quickly

**Blees et al 11** (Tom Blees1, Yoon Chang2, Robert Serafin3, Jerry Peterson4, Joe Shuster1, Charles Archambeau5, Randolph Ware3, 6, Tom Wigley3,7, Barry W. Brook7, 1Science Council for Global Initiatives, 2Argonne National Laboratory, 3National Center for Atmospheric Research, 4University of Colorado, 5Technology Research Associates, 6Cooperative Institute for Research in the Environmental Sciences, 7(climate professor) University of Adelaide, "Advanced nuclear power systems to mitigate climate change (Part III)," 2/24/11) http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/-http://bravenewclimate.com/2011/02/24/advanced-nuclear-power-systems-to-mitigate-climate-change/

How Fast Can We Build Them?¶ During France’s nuclear building boom they built an average of six nuclear power plants per year, culminating in a situation that provides them with about 80% of their electrical needs while making electricity their fourth-largest export earner. Gross Domestic Product (GDP) can be used as a rough guide to what a given country can financially bear for such a project, keeping in mind that France proceeded without the sense of urgency that the world today should certainly be ready to muster. There are six countries with higher GDPs than France, all of whom already possess the technology to build fast reactors: USA, China, Japan, India (they’re building one now), Germany, and the United Kingdom. Add Canada and Russia (which already has a commercial fast reactor running and is planning more), then tally up the GDP of these eight countries. At the rate of 6 plants per year (~ 1GW each) at the equivalent of France’s GDP, these countries alone could afford to build about 117 power plants per year, even without any greater urgency than the French brought to bear on their road to energy independence.¶ Consider that there are about 400 nuclear power plants in the world today. At this entirely feasible rate of construction we could more than double the planet’s nuclear capacity in just four years. Remember, the French accomplished their transformation with non-modular, albeit standardized, Gen II designs. Modular construction, passive safety systems, and factory fabrication, divided among companies all over the planet, could realistically convert the planet’s electricity production to virtually all nuclear in a couple decades, with abundant surplus electricity for ancillary uses such as desalination and the production of liquid fuels such as ammonia.

### AT: Licensing

#### Vogtle licensing provides a stable and predictable investment climate for the nuclear power industry.

**Gray, ‘12**

[Chuck, Executive Director -- National Association of Regulatory Utility Commissioners, “A Strong Step, but Hurdles Remain,” http://energy.nationaljournal.com/2012/02/is-america-poised-for-nuclear.php]

The Nuclear Regulatory Commission’s approval of the new units at Plant Vogtle is an important development for both the nuclear industry and our country. With the issuances of these licenses, the industry knows what to expect moving forward, sending a strong signal to the critical stakeholders, including both the investment community and, significantly, the State regulators that NARUC represents. A predictable investment climate can lead to stable rates. At the end of the day, we hope the big winners are the consumers who pay for the bulk of building these plants.

### Elections – CTBT Impact D

#### No climate agenda or CTBT push in Obama’s second term.

Lizza, ‘12

[Ryan, The New Yorker, 6-18, “THE SECOND TERM,” <http://www.newyorker.com/reporting/2012/06/18/120618fa_fact_lizza?currentPage=all>]

Obama has an ambitious second-term agenda, which, at least in broad ways, his campaign is beginning to highlight. The President has said that the most important policy he could address in his second term is climate change, one of the few issues that he thinks could fundamentally improve the world decades from now. He also is concerned with containing nuclear proliferation. In April, 2009, in one of the most notable speeches of his Presidency, he said, in Prague, “I state clearly and with conviction America’s commitment to seek the peace and security of a world without nuclear weapons.” He conceded that the goal might not be achieved in his lifetime but promised to take “concrete steps,” including a new treaty with Russia to reduce nuclear weapons and ratification of the 1996 Comprehensive Nuclear Test-Ban Treaty.¶ In 2010, Obama negotiated a new Strategic Arms Reduction Treaty with the Russians and won its passage in the Senate. But, despite his promise to “immediately and aggressively” ratify the C.N.T.B.T., he never submitted it for ratification. As James Mann writes in “The Obamians,” his forthcoming book on Obama’s foreign policy, “The Obama administration crouched, unwilling to risk controversy and a Senate fight for a cause that the President, in his Prague speech, had endorsed and had promised to push quickly and vigorously.” As with climate change, Obama’s early rhetoric and idealism met the reality of Washington politics and his reluctance to confront Congress.¶ Obama’s advisers say it is more likely that the President would champion an issue with greater bipartisan support, such as immigration reform. Obama has also said that he hopes to have the time and the attention to address a more robust aid agenda for developing countries than he was able to muster in his first term. These issues will loom over his potential second term, awaiting a push from the President. So, too, will the lingering question of who Obama “really” is: an aspiring compromiser, a lawyerly strategist, or a bold visionary willing to gamble to secure his legacy.¶ Whatever goal Obama decides on, his opportunities for effecting change are slight. Term limits are cruel to Presidents. If he wins, Obama will have less than eighteen months to pass a second wave of his domestic agenda, which has been stalled since late 2010 and has no chance of moving this year. His best opportunity for a breakthrough on energy policy, immigration, or tax reform would come in 2013. By the middle of 2014, congressional elections will force another hiatus in Washington policymaking. Since Franklin Roosevelt, Presidents have lost an average of thirty House seats and seven Senate seats in their second midterm election. By early 2015, the press will begin to focus on the next Presidential campaign, which will eclipse a great deal of coverage of the White House. The last two years of Obama’s Presidency will likely be spent attending more assiduously to foreign policy and shoring up the major reforms of his early years, such as health care and financial regulation.¶ As William Daley, who served for a year as Obama’s chief of staff, put it, “After 2014, nobody cares what he does.”¶ II¶ Sooner or later, every reëlected President confronts the frustration lurking in a second term: reëlection to power does not necessarily grant more of it. Richard Nixon and his aides were obsessed with using a second term to take command of a federal government that they believed was hostile to the President and his agenda. “Faced with a bureaucracy we did not control, was not staffed with our people, and with which we did not know how to communicate, we created our own bureaucracy,” White House aides wrote in a 1972 memo found in the files of H. R. Haldeman, who later went to prison for covering up Watergate crimes.¶ Nixon gave his aides detailed directions about how to flush unsympathetic bureaucrats from the government after he won reëlection. Early in the 1972 campaign, he wrote his aides with instructions for a “housecleaning” at the C.I.A.:¶ I want a study made immediately as to how many people in CIA could be removed by presidential action. . . . Of course, the reduction in force should be accomplished solely on the ground of its being necessary for budget reasons, but you will both know the real reason. . . . I want you to quit recruiting from any of the Ivy League schools or any other universities where either the university president or the university faculties have taken action condemning our efforts to bring the war in Vietnam to an end.¶ Nixon’s paranoid theory was that none of his second-term priorities—from his China policy to his health-care plan—could be addressed until the White House controlled the rest of his government. The housecleaning efforts were not technically a part of Watergate, but they were a harbinger of his second-term self-immolation.¶ The Reagan Administration quickly grasped that whatever power it had gained through reëlection had to be spent judiciously. As part of Regan’s brainstorming exercise about the President’s second term, Alfred Kingon, then the Assistant Treasury Secretary, urged the President to choose his top priorities with care. The best that Reagan could hope for was victory on a few big initiatives. “Please remember that there are about 50 or 60 issues going at once,” Kingon wrote. “We can only keep track of 20 or 25, concentrate on a mere handful and hope to have legislative success in a fraction of that.”¶ James Baker, Reagan’s chief of staff preceding Regan, wrote to the President after the election and made a similar point. “Unlike the campaign in 1980, you have campaigned with little specificity,” he told the President. (Reagan’s “Morning in America” theme had not been burdened with detailed policy proposals.) “There are very many items that any right-thinking president would want to achieve,” Baker wrote. “But frankly, there are too many. You must set priorities.”¶ A key challenge for a second-term President lies in managing the delicate balance between what he wants (his priorities) and what he thinks the public wants (his perceived mandate)—and taking care not to confuse the two. George W. Bush was less adept at this than Reagan. Bush approached his second term with two broad goals. In foreign policy, he attempted to steer his White House away from the radicalism of the first four years. During the 2004 campaign, Bush came close to jettisoning the two people—Vice-President Dick Cheney and Defense Secretary Donald Rumsfeld—most associated with extreme views of how to handle post-9/11 foreign affairs. After the election, Cheney saw the influence of his principal ideological opponents—Stephen Hadley, the new national-security adviser, and Condoleezza Rice, the new Secretary of State—rise, especially on issues such as Syria, North Korea, and the Administration’s policy on torture. Cheney’s recent memoir boils with his indignation at being sidelined. At a National Security Council meeting in 2007, Cheney made the case for bombing a Syrian nuclear reactor. “After I finished,” he writes, “the President asked, ‘Does anyone here agree with the Vice President?’ Not a single hand went up around the room.”¶ Domestically, however, Bush miscalculated his position. Early in his second term, he made a strong play for Social Security reform; it failed miserably, for lack of Democratic backing. “If I had it to do over again, I would have pushed for immigration reform, rather than Social Security, as the first major initiative of my second term,” Bush lamented in his memoir. “Unlike Social Security, immigration reform had bipartisan support.”¶ In 2005, Bush won approval of an energy bill, a trade agreement, and a bankruptcy-reform bill. But the remainder of his Presidency was consumed by scandal (the Valerie Plame case, the N.S.A.’s warrantless wiretapping program, the firing of eight U.S. Attorneys for political reasons) and by badly managed catastrophes (Katrina, deterioration in Iraq, the crash of financial markets). The Democrats took over Congress in 2006, and on Election Day in 2008 Bush’s Gallup approval rating stood at twenty-five per cent.¶ There is an argument, common on the right, that if Obama is reëlected he will pursue a more ideological, even radical, agenda because he will be unbound by the moderating influence of another election. As Dick Morris, of Fox News, put it in March, “A second term for Obama would bring on a socialist nightmare hellscape as he moves further to the left.” This argument is often bolstered by noting that Obama recently told the Russian Prime Minister, Dmitry Medvedev, that he would have “more flexibility” to pursue negotiations on missile defense “after my election.” Ed Morrissey, of the conservative blog Hot Air, warned that the comment should cause voters “to fear an Obama second term.”¶ But a President who has won reëlection can also feel less tied to his political base and more free to shift toward the political center. At the start of Reagan’s second term, Kingon advised the White House that the victory had allowed him to pursue policies that would advance only with bipartisan support—a precondition for success, given that Democrats controlled the House. Kingon noted that only twenty per cent of Americans agreed with Reagan’s anti-abortion policy and that many Americans voted for Reagan “knowing that he believes in these things but understanding that he would not push for them.” He argued that this was the implicit promise of the Reagan reëlection campaign. Aggressively pursuing social issues, Kingon wrote, would substantially diminish the President’s political support, and would risk failure in other key areas. “I think it is important to remember that there is a point beyond which popular Presidential support erodes, and he can do nothing, e.g., Jimmy Carter,” Kingon warned.¶ Reagan largely heeded this advice, and he had one of the most successful second terms in American history. He passed immigration reform, a major reform of the tax code, and an arms-control treaty with the Soviets. He also appointed two conservative Supreme Court Justices, Antonin Scalia and Anthony Kennedy. He ended his Presidency with an approval rating of more than fifty-five per cent.¶ Obama entered office with what many considered a mandate. Taking advantage of large majorities in Congress, he spent the first two years passing major Democratic legislation: financial regulation and health-care reform. But the second two years were devoted to managing the gridlock created by the backlash against the first two, with a resurgent Republican Party intent on Obama’s defeat.¶ Axelrod told me that Obama has learned from recent history. “President Bush claimed a mandate after the last election and took steps that he never ran on,” Axelrod said, pointing to Bush’s miscalculation on Social Security. “You have to govern boldly, but with the humility of knowing that you can’t assume that people embrace your case—you have to make it, even after the election. The thing that trips you up, and certainly tripped up Bush, is the assumption that, if you win, somehow you can then embark on an agenda that is wholly different from the one you campaigned on.”¶ If Obama aims to leave a legislative mark in his second term, he’ll need two things: a sense of humility, and a revitalized faction of Republican lawmakers willing to make deals with the President. Given the polarized environment and the likelihood of a closely divided Congress, it seems more implausible to suppose that Obama would turn radical in his second term than that he would cool to his Democratic base.

**No nuclear use—expert consensus**

**Enders, 2002** – quoting lots of professors (David, Daily News Editor for the Michigan Daily, “Experts say nuclear war still unlikely,” http://media.www.michigandaily.com/media/storage/paper851/news/2002/01/30/News/Experts.Say.Nuclear.War.Still.Unlikely-1404620.shtml)

University political science Prof. Ashutosh Varshney becomes animated when asked about the likelihood of nuclear war between India and Pakistan. "Odds are close to zero," Varshney said forcefully, standing up to pace a little bit in his office. "The assumption that India and Pakistan cannot manage their nuclear arsenals as well as the U.S.S.R. and U.S. or Russia and China concedes less to the intellect of leaders in both India and Pakistan than would be warranted." The world"s two youngest nuclear powers first tested weapons in 1998, sparking fear of subcontinental nuclear war a fear Varshney finds ridiculous. "The decision makers are aware of what nuclear weapons are, even if the masses are not," he said. "Watching the evening news, CNN, I think they have **vastly overstated the threat** of nuclear war," political science Prof. Paul Huth said. Varshney added that there are numerous factors working against the possibility of nuclear war. "India is committed to a no-first-strike policy," Varshney said. "It is virtually impossible for Pakistan to go for a first strike, because the retaliation would be gravely dangerous." Political science Prof. Kenneth Lieberthal, a former special assistant to President Clinton at the National Security Council, agreed. "Usually a country that is in the position that Pakistan is in would not shift to a level that would ensure their total destruction," Lieberthal said, making note of India"s considerably larger nuclear arsenal. "American intervention is another reason not to expect nuclear war," Varshney said. "If anything has happened since September 11, it is that the command control system has strengthened. The trigger is in very safe hands." But the low probability of nuclear war does not mean tensions between the two countries who have fought three wars since they were created in 1947 will not erupt. "The possibility of conventional war between the two is higher. Both sides are looking for ways out of the current tension," Lieberthal said.

#### CTBT doesn’t solve prolif – other countries won’t sign on

Mackubin Thomas **Owens**, Associate Dean of Academics for Electives and Directed Research and Professor of Strategy and Force Planning at the U.S. Naval War College in Newport, Rhode Island, 8/28/**1999**

(“The Comprehensive Test Ban Treaty, Junk Arms Control”, The Claremont Institute)

But even if he had, the treaty deserved to be rejected on its merits. This is the reason such "right wing extremists" and "isolationists" in the Senate as Richard Lugar, Olympia Snowe, Thad Cochran, and Peter Domenici voted against the CTBT. Senator Lugar, a senior member of the Foreign Relations Committee and a consistent supporter of arms control agreements, stated that this treaty was not up to the standards of previous pacts submitted to the Senate. Treaty opponents voted down the CTBT on the basis of four arguments. First, they concluded that the CTBT would stop neither proliferation nor testing by current nuclear states. The fact is that states may develop nuclear weapons without testing. North Korea is a case in point. Iran and Iraq may be close behind. The critics also rejected the claim that if only the U.S. would set the example by ratifying the CTBT, other countries would stop testing as well. They noted that although the US has observed a unilateral moratorium on nuclear testing since 1992, China, India, and Pakistan all subsequently tested nuclear weapons.

#### No impact – Romney will copy Obama on foreign policy

Aaron David Miller, 5-23-2012; distinguished scholar at the Woodrow Wilson International Center for Scholars; Barack O'Romney http://www.foreignpolicy.com/articles/2012/05/23/barack\_oromney

And that brings up an extraordinary fact. What has emerged in the second decade after 9/11 is a remarkable consensus among Democrats and Republicans on a core approach to the nation's foreign policy. It's certainly not a perfect alignment. But rarely since the end of the Cold War has there been this level of consensus. Indeed, while Americans may be divided, polarized and dysfunctional about issues closer to home, we are really quite united in how we see the world and what we should do about it. Ever wondered why foreign policy hasn't figured all that prominently in the 2012 election campaign? Sure, the country is focused on the economy and domestic priorities. And yes, Obama has so far avoided the kind of foreign-policy disasters that would give the Republicans easy free shots. But there's more to it than that: Romney has had a hard time identifying Obama's foreign-policy vulnerabilities because there's just not that much difference between the two. A post 9/11 consensus is emerging that has bridged the ideological divide of the Bush 43 years. And it's going to be pretty durable. Paradoxically, both George W. Bush's successes and failures helped to create this new consensus. His tough and largely successful approach to counterterrorism -- specifically, keeping the homeland safe and keeping al Qaeda and its affiliates at bay through use of special forces, drone attacks, aggressive use of intelligence, and more effective cooperation among agencies now forms a virtually unassailable bipartisan consensus. As shown through his stepped-up drone campaign, Barack Obama has become George W. Bush on steroids. And Bush 43's failed policies -- a discretionary war in Iraq and a mismanaged one in Afghanistan -- have had an equally profound effect. These adventures created a counter-reaction against ill-advised military campaigns that is now bipartisan theology as well. To be sure, there are some differences between Romney and Obama. But with the exception of Republicans taking a softer line on Israel and a tougher one on Russia -- both stances that are unlikely to matter much in terms of actual policy implementation -- there's a much greater convergence.

#### Romney won’t be crazy with Russia

The Economist 9/1 (9/1/12, Romney Could Screw Up US Relations With Russia, <http://www.businessinsider.com/mitt-romneys-foreign-policy-chops-come-into-light-2012-9>, RBatra)

At the same time, the potential impact of a Romney presidency should not be exaggerated. Mr Romney is not an ideological politician, and he will have solid reasons to maintain a working relationship with Russia. These include reliance on Russian transit corridors to support US forces in Afghanistan to 2015 and beyond, Russia's veto in the UN Security Council, and its potential to act as interlocutor between the US and rogue states. Finally, there is a significant element of uncertainty that stems from the lack of clarity about what Mr Romney, who has often changed his position, actually stands for. In particular, the extent of the influence on him of several competing Republican foreign policy schools (neo-conservativism, populist isolationism, realism, liberal internationalism) is unclear.

#### Putin a/c

**Weiss 6-19** – Founder and Chief Executive Officer of Weiss Asset Management, a Boston-based investment firm,[[2]](http://en.wikipedia.org/wiki/Andrew_Weiss_%28economist%29#cite_note-time-1) and Professor Emeritus [Boston University](http://en.wikipedia.org/wiki/Boston_University) (Andrew, 2012, “[Putin's Waiting Game](http://www.foreignpolicy.com/articles/2012/06/19/waiting_game)” <http://www.foreignpolicy.com/articles/2012/06/19/waiting_game?page=full>) Jacome

The most important yet overlooked aspect of the current situation, however, may be the cynicism and casual indifference that Putin has displayed toward the U.S.-Russian relationship in the face of his much bigger problems at home. At the moment, Putin appears to be preoccupied by the political mess created by his decision to [switch jobs with Medvedev](http://www.nytimes.com/2012/05/09/world/europe/slight-hiccup-as-putin-and-medvedev-switch-jobs-in-russia.html) and the [badly flawed Duma elections](http://www.bbc.co.uk/news/world-europe-16042797) last December. He also must contend with the ripple effects of the eurozone drama and global economic slowdown, which together have contributed to a [20 percent decline](http://online.wsj.com/article/SB10001424052702303734204577467893480636270.html?mod=ITP_moneyandinvesting_3) in global oil prices over the past two months alone.

Against this backdrop, the ups and downs of relations with Washington may be little more than a distraction from the more urgent challenge of restoring the aura of invulnerability and bezal'ternativnost' (the lack of any alternative) that bolstered Putin's authority during his first 12 years in power. Already, he seems to have fallen back on the tried-and-true formula of portraying himself as the protector of a Fortress Russia beset by imaginary foreign enemies and spies.  This gambit has long helped the Kremlin cultivate support from average citizens and build up the regime's legitimacy.

The chief beneficiaries of Putin's rule -- the increasingly affluent and middle-class residents of places like Moscow -- show no signs of muffling their anger about his return to the Kremlin despite an ongoing crackdown on political dissent. Still, Putin knows how to cater to the two-thirds of the Russian electorate that voted for him in March and reside primarily in Russia's smaller cities and countryside. He may find it hard to resist the temptation to play upon their worst fears and anti-Western stereotypes. **Sacrificing the past several years of dramatic improvement in the U.S.-Russian relationship may seem like a small price to pay if it breathes new life and legitimacy into his rule.**

#### Romney win now

**Muja, 10/5/12 -** President and CEO of Albanian Minerals (Sahit, The Examiner, “Romney has huge gains in polls against Obama after the debate,”

<http://www.examiner.com/article/romney-has-a-huge-gain-polls-against-obama-after-the-debate>

Sahit Muja: A new Reuters/Ipsos poll released on Friday has more bad news for Obama, one in five voters said the Democrat's performance in the contest in Denver on Wednesday made them feel more negative about President Obama and almost a third said they felt more positive about his Republican challenger.¶ "Romney did well, he was perceived as doing well, and we're seeing the effect of that today," said Ipsos managing director Cliff Young. "Definitely in the short-term now, he's picking up people because of his performance in the debate."¶ The online tracking poll conducted between Monday and Friday showed 46 percent of likely voters backed Obama, versus 44 percent for Romney.¶ Obama had led Romney by 6 percentage points in the poll released on Wednesday and the edge narrowed to five points - a 48-43 percent lead for Obama - in polling up to Thursday.¶ A CNN/ORC International poll of people who watched the debate showed 67% thought Romney won, compared to 25% for Obama.¶ CBS News poll, uncommitted voters agreed 2 to 1 that Mitt Romney beat President Obama in the first presidential debate¶ The poll conducted by McLaughlin & Associates has a national sample of 1000 likely voters and an over-sample of 300 likely Coloradan voters. In Colorado, Romney leads with 50%, while Obama earns 46%.¶ Mitt Romney leads in seven of the 11 swing states. The QStarNews poll surveyed likely voters from Colorado, Florida, Iowa, Michigan, Nevada, New Hampshire, North Carolina, Ohio, Pennsylvania, Virginia and Wisconsin. The poll included 2737 likely voters from those 11 states and had a margin of error of 1.87 percent.¶ The critical battleground state of Ohio remains a draw, with President Obama holding a one-point lead in the first post-debate survey of the contest there.¶ The latest Rasmussen Reports telephone survey of Likely Ohio Voters, taken last night, finds Obama with 50% support to Mitt Romney’s 49%.¶ The latest Rasmussen Reports telephone survey of Likely Virginia Voters, taken last night, shows Romney earning 49% support to Obama’s 48%

#### Jobs and gas prices ensure public support---Nuke isn’t an election issue but if they were, links non U

Johnson 12 John, Nuclear Energy Insider, April 25, "US Campaign Trail: is nuclear in the equation?", analysis.nuclearenergyinsider.com/new-build/us-campaign-trail-nuclear-equation

In the next Presidential election, American voters will be voting with their pockets. We look at how the campaign so far has revealed which candidate will support nuclear R&D, nuclear new-build projects and ultimately preserve and create nuclear sector jobs. As the U.S. Presidential election draws closer, Americans are most concerned about job creation and how the candidates plan to boost the U.S. economy. Alternative energy policies have received a fair amount of publicity from the Obama administration, although nuclear power specifically is rarely mentioned on the campaign trial, primarily due to perceived safety questions. Just the same, the Obama Administration is considered a nuclear supporter, having made several moves to help jumpstart America’s nuclear energy industry. Obama plugged nuclear power during his first State Of The Union speech several years ago, and has generally been upbeat about the energy source’s future in the U.S. The Campaign Obama, a Democrat, will face Mitt Romney in the November election. Romney is expected to be named the official Republican nominee in August. While Romney has not taken a stance on nuclear energy during his campaign, the Obama administration has made significant investments in the sector, including a $450m budget request in March intended to advance the development of American-made small modular reactors (SMRs). Congress still needs to approve the authorization for funding. The SMRs are expected to be ready for commercial use within 10 years, and are intended for small electric grids and for locations that cannot support large reactors, offering utilities the flexibility to scale production as demand changes. “The Obama Administration and the Energy Department are committed to an all-of-the-above energy strategy that develops every source of American energy, including nuclear power, and strengthens our competitive edge in the global clean energy race,” U.S. Energy Secretary Steven Chu said when the program was announced. “Through the funding for small modular nuclear reactors, the Energy Department and private industry are working to position America as the leader in advanced nuclear energy technology and manufacturing.” John Keeley, manager of media relations for the Nuclear Energy Institute, said that the Obama administration has done what it can to support the deployment on new build-outs in the United States to build out nuclear, as well as supporting research and development efforts, such as those in the small reactor space. Research support In addition, the U.S. has invested $170 million in research grants at more than 70 universities, supporting research and development into a full spectrum of technologies, from advanced reactor concepts to enhanced safety design. “The President was explicit in his State Of The Union speech about the virtues of nuclear as a technology and its role in clean air generation,” said Keeley. “And he has been supportive of developing more nuclear plants in this country. Those initiatives have to be identified as significant evidence of support for the nuclear sector.” There are currently 104 nuclear power reactors operating in the U.S. in 31 states, operated by 30 different utilities. There are four new nuclear reactors being built in the U.S., including two in George at total expected cost of $14bn. In another sign of the U.S support for the industry, the federal government provided utility company Southern with an $8.3bn loan guarantee for the Vogtle Units 3 and 4, the first new nuclear plants to be built in the U.S. in the last 30 years. They are expected to be operational in 2016 and 2017. The U.S. Energy Department has also supported the Vogtle project and the development of the next generation of nuclear reactors by providing more than $200m through a cost-share agreement to support the licensing reviews for the Westinghouse AP1000 reactor design certification. In addition to the Vogtle plants, SCANA, a subsidiary of South Carolina Electric & Gas Co. plans to add two reactors to its nuclear power plant near Jenkinsville, S.C., by 2016 and 2019. “There is certainly political consensus in support of clean generation, and large scale cultural consensus as well,” said Keeley. Political benefits of nuclear support As gas prices in the U.S. continue to soar, it’s possible that the tide will turn more in favor of nuclear and other clean energy sources, especially as electric cars take a stronger foothold. In addition, the job creation benefits from nuclear could work their way into the political landscape as well. The two new Vogtle nuclear plants are expected to create approximately 5,000 on-site jobs during the peak of construction, with 800 high paying jobs remaining over the life of the plant.

#### even if voters hate Obama’s energy policy they won’t shift to Romney

Lewis, 10/1/12 - senior contributor to The Daily Caller (Matt, The Daily Caller, “Mitt Romney’s struggle to win blue collar Ohio voters”

This sounds trivial, but it matters greatly — especially in places like Ohio.

The Atlantic’s Molly Ball is consistently a “must read,” and her latest column reinforces a point I’ve been making for a long time — that Mitt Romney is in danger of under-performing with working-class whites in key states like the Buckeye state. (Ball’s teaser says it all: “In Appalachian coal country, Romney is now viewed with nearly as much suspicion as Obama — and that may be the story of the 2012 election.”)

There is at least one substantive reason for these voters to be skeptical of Romney. While interviewing Ohio voters, Ball stumbled over an interesting blast from the past:

It turns out Romney, as governor of Massachusetts in 2003, held a press conference in front of a coal-fired power plant. “I will not create jobs or hold jobs that kill people,” he said, and then, gesturing at the facility behind him: “That plant, that plant kills people.” You can see the footage in an Obama campaign ad that’s been airing heavily here. It seems to have made an impression.

The notion that Romney would be worse for coal than Obama seems absurd. Still, Obama is using the line to effectively muddy the waters. All he really needs is for voters to conclude, “they’re both bad,” and Obama can consider that a victory. Ball sums it up thusly,

I heard it over and over again from Ohioans — the idea that Romney stands for the wealthy and not for them. Obama’s depiction of his rival as an out-of-touch rich guy, which has gotten no little assistance from Romney himself, has made a deep and effective impression with these self-consciously working-class voters.

#### Too late to change the election- ideology

Helling ’12 (DAVE HELLING, McClatchy Newspapers Miami Herald 7-22-12 "Is the race for president already over?"

But **a growing number** of **political scientists and campaign consultants** - backed by the **latest polling data** - think the daily campaign back-and-forth **is having no significant effect on voters.** Most Americans have **locked in** their presidential decisions, polls released Thursday suggested, and the already small number of persuadable voters **shrinks by the hour**. Put another way: America could vote for president next week, and the outcome would probably be the same as it will be in November. "That's accurate, barring some really big, big event or change in the political environment," said Alan Abramowitz, a political science professor at Emory University in Atlanta, who has studied presidential voting patterns. Kenneth Warren, a political science professor at St. Louis University, agreed. "Most people have decided who they're going to vote for early on," he said. Recent polls show those who have decided are split almost evenly between Obama and Romney. In a CBS/New York Times poll, Romney led by 1 point. In a Fox News poll, he trailed Obama by 4 points. A National Public Radio poll found Obama leading by 2 points. A Gallup tracking poll over the same time period showed the race dead even. The average of polls puts the Obama advantage at 1.2 percent, according to Real Clear Politics, a political aggregation website. The incumbent has led Romney in that average by a one- to two-point margin since last October. Political scientists and consultants said there were several reasons for early presidential decision-making. In an Internet-cable-TV age, **voters are pounded with political messages daily, helping them make up their minds far in advance** of the election. An incumbent in the race makes at least one of the candidates a known quantity. And American **voters are deeply divided, further cementing their choices.**

#### Nuclear power doesn’t swing the election -- identical positions mean it won’t get drawn into the debate.

**Wood, 9-13-12**

[Elisa, AOL, “What Obama and Romney Don't Say About Energy,” http://energy.aol.com/2012/09/13/what-obama-and-romney-dont-say-about-energy/]

Fossil fuels and renewable energy have become touchy topics in this election, with challenger Mitt Romney painting President Barack Obama as too hard on the first and too fanciful about the second – and Obama saying Romney is out of touch with energy's future. But two other significant resources, nuclear power and energy efficiency, are evoking scant debate. What gives? Nuclear energy supplies about 20 percent of US electricity, and just 18 months ago dominated the news because of Japan's Fukushima Daiichi disaster – yet neither candidate has said much about it so far on the campaign trail. Romney mentioned nuclear power only seven times in his recently released white paper, while he brought up oil 150 times. Even wind power did better with 10 mentions. He pushes for less regulatory obstruction of new nuclear plants, but says the same about other forms of energy. Obama's campaign website highlights the grants made by his administration to 70 universities for research into nuclear reactor design and safety. But while it is easy to find his ideas on wind, solar, coal, natural gas and oil, it takes a few more clicks to get to nuclear energy. The Nuclear Energy Institute declined to discuss the candidates' positions pre-election. However, NEI's summer newsletter said that both "Obama and Romney support the use of nuclear energy and the development of new reactors."

#### Winners win elections- the plan is key to Obama’s momentum

Creamer, 11 – political strategist for over four decades

(Robert, he and his firm, Democracy Partners, work with many of the country’s most significant issue campaigns, one of the major architects and organizers of the successful campaign to defeat the privatization of Social Security, he has been a consultant to the campaigns to end the war in Iraq, pass health care, pass Wall Street reform, he has also worked on hundreds of electoral campaigns at the local, state and national level, "Why GOP Collapse on the Payroll Tax Could be a Turning Point Moment," Huffington Post, 12-23-11, www.huffingtonpost.com/robert-creamer/why-gop-collapse-on-the-p\_b\_1167491.html, accessed 9-1-12, mss)

2). Strength and victory are **enormous political assets.** Going into the New Year, they now belong to the President and the Democrats. One of the reasons why the debt ceiling battle inflicted political damage on President Obama is that it made him appear ineffectual - a powerful figure who had been ensnared and held hostage by the Lilliputian pettiness of hundreds of swarming Tea Party ideological zealots. In the last few months -- as he campaigned for the American Jobs Act -- he has shaken free of those bonds. Now voters have just watched James Bond or Indiana Jones escape and turn the tables on his adversary. Great stories are about a protagonist who meets and overcomes a challenge and is victorious. The capitulation of the House Tea Party Republicans is so important because it feels like the beginning of that kind of heroic narrative. Even today most Americans believe that George Bush and the big Wall Street Banks - not by President Obama -- caused the economic crisis. Swing voters have never lost their fondness for the President and don't doubt his sincerity. But they had begun to doubt his effectiveness. They have had increasing doubts that Obama was up to the challenge of leading them back to economic prosperity. The narrative set in motion by the events of the last several weeks could be a turning point in voter perception. It could well begin to convince skeptical voters that Obama is precisely the kind of leader they thought he was back in 2008 - a guy with the ability to lead them out of adversity - a leader with the strength, patience, skill, will and resoluteness to lead them to victory. That now contrasts with the sheer political incompetence of the House Republican Leadership that allowed themselves to be cornered and now find themselves in political disarray. And it certainly contrasts with the political circus we have been watching in the Republican Presidential primary campaign. 3). This victory will inspire the dispirited Democratic base. Inspiration is the feeling of empowerment - the feeling that you are part of something larger than yourself and can personally play a significant role in achieving that goal. It comes from feeling that together you can overcome challenges and win. Nothing will do more to inspire committed Democrats than the sight of their leader -- President Obama - out maneuvering the House Republicans and forcing them into complete capitulation. The events of the last several weeks will send a jolt of electricity through the Progressive community. The right is counting on Progressives to be demoralized and dispirited in the coming election. The President's victory on the payroll tax and unemployment will make it ever more likely that they will be wrong. 4). When you have them on the run, that's the time to chase them. The most important thing about the outcome of the battle over the payroll tax and unemployment is that it shifts the political momentum at a critical time. Momentum is an independent variable in any competitive activity - including politics. In a football or basketball game you can feel the momentum shift. The tide of battle is all about momentum. The same is true in politics. And in politics it is even more important because the "spectators" are also the players - the voters. **People** follow - and **vote -- for winners**. The bandwagon effect is enormously important in political decision-making. Human beings like to travel in packs. They like to be at the center of the mainstream. Momentum shifts affect their perceptions of the mainstream. For the last two years, the right wing has been on the offensive. Its Tea Party shock troops took the battle to Democratic Members of Congress. In the Mid-Terms Democrats were routed in district after district. Now the tide has turned. And when the tide turns -when you have them on the run - that's the time to chase them.

### Condition cp

#### No green bubble and it doesn’t apply to nuclear

**Hamilton 12** [Clean Break, Tyler Hamilton is editor-in-chief of Corporate Knights magazine and a business columnist for the Toronto Star, “Clean energy technologies? No bubble bursting there. Future is growth, growth, growth”, 8/6/2012]

That usually means cleaning it up, making it smarter and more reliable, and investing in clean technologies — from Canada, perhaps — that make it more robust and efficient.¶ There are some commentators out there who like to point to very specific events as evidence that the clean energy and technology boom has gone bust. They point to the exaggerated Solyndra “scandal,” which saw the bankruptcy of the solar manufacturing start-up after it received — and had already burned through — funding that was secured via a $535 million (U.S.) loan guarantee from the U.S. Department of Energy.¶ It makes for great politics, but the reality is that companies do sometimes fail and the public does often have flesh in the game. It’s not unique to clean energy. The loan guarantee program, after all, was designed for high-risk bets. Looked at objectively, the program has actually outperformed expectations. Solyndra and a handful of others are falling stars in a galaxy of promise.¶ But Solyndra is just the start. Clean energy skeptics point to company closures and the collapse of many solar, wind and other cleantech-themed stocks. They cite how U.S. government stimulus spending for clean energy projects is coming to an end. They flag how several jurisdictions in Europe, which is dealing with unrelated economic problems, are reducing subsidies for renewable energy projects.¶ The green dream is dead — or dying. It’s the message you get when listening to those, mostly living in a North American bubble, who doubted the vision in the first place.¶ This cacophony ignores the incredible needs of countries like India, which is already among the top spenders in the world on clean-energy projects, having spent $10.2 billion on renewable energy in 2011. As the blackout suggests, the need to accelerate that spending has grown more urgent.¶ Japan, meanwhile, is embracing renewable energy in a big way in the aftermath of the nuclear disaster at Fukushima. It just launched its own feed-in-tariff program —similar to the one in Ontario —aimed at aggressively spurring solar, wind and geothermal development to help reduce the country’s dependence on nuclear power.¶ Bloomberg New Energy Finance reported this month that global investment in clean energy surged to $57 billion in the second quarter of 2012, up 24 per cent from the first quarter and carried largely by a stunning 92 per cent spending increase out of China. Investment is still down year-over- year —2011 wasn’t a great year generally, right? —but it’s on the upswing in 2012, hardly the sign of collapse.¶ That boost from China is expected to continue, particularly in solar. As part of its 12th five-year economic plan, released in 2011, China originally expected to increase solar installations 20-fold by 2020. Last month it decided to draw forward that target to 2015, when it hopes to have 21 gigawatts of solar power capacity in place —enough to supply all of Ontario on a sunny spring day.¶ Why is China moving in this direction? Economically, it carries long-term strategic importance. But China’s citizens are also growing fed up with unbearable air, water and soil pollution, so much so that there is a rise in violent protests breaking out across the country.¶ The reason why clean energy isn’t a fad or a bursting bubble is that global problems such as climate change, pollution, poverty, food scarcity, crumbling legacy infrastructure, and access to clean water aren’t going away anytime soon. Renewable energy and other clean technologies may not be the only solution, but they are a big and growing part of it.¶ Will nuclear help out? Maybe, but don’t count on it. Jeff Immelt, chief executive of General Electric, a big supplier of nuclear technology, told the Financial Times this week that it’s “really hard” these days to justify the cost of nuclear. “I think some combination of gas, and either wind or solar … that’s where we see most countries around the world going.”¶ Ontario may want to reconsider plans for new nukes at Darlington.¶ Fact is, renewable energy costs are falling fast, and that’s part of the reason there are layoffs, profit warnings, bankruptcies and falling share prices in the industry. Subsidies are supposed to gradually fade away, something the fossil fuel industry hasn’t learned after 100 years of handouts.¶ There was oversupply in clean energy equipment. Weak companies are struggling and some are failing. Those intent on surviving figure out how to innovate, adjust, enter new geographic markets and come out stronger – the cycle is not unique to clean energy.¶ “Any emerging market will experience growth problems and will have winners and losers. And the losers’ problems do not necessarily indicate the absence of a long-term market,” says Craig Tighe, a partner with global law firm DLA Piper. “Were that the case, the loss of Palm and Handspring would mean that the smart phone market is not sustainable, which is manifestly not the case.”¶ Growth in clean energy is happening. What’s changing is the pace of that growth and the players who get to benefit.¶ There’s no bubble bursting here.

#### No econ impact

Robert Jervis 11, Professor in the Department of Political Science and School of International and Public Affairs at Columbia University, December 2011, “Force in Our Times,” Survival, Vol. 25, No. 4, p. 403-425

Even if war is still seen as evil, the security community could be dissolved if severe conflicts of interest were to arise. Could the more peaceful world generate new interests that would bring the members of the community into sharp disputes? 45 A zero-sum sense of status would be one example, perhaps linked to a steep rise in nationalism. More likely would be a worsening of the current economic difficulties, which could itself produce greater nationalism, undermine democracy and bring back old-fashioned beggar-my-neighbor economic policies. While these dangers are real, it is hard to believe that the conflicts could be great enough to lead the members of the community to contemplate fighting each other. It is not so much that economic interdependence has proceeded to the point where it could not be reversed – states that were more internally interdependent than anything seen internationally have fought bloody civil wars. Rather it is that even if the more extreme versions of free trade and economic liberalism become discredited, it is hard to see how without building on a preexisting high level of political conflict leaders and mass opinion would come to believe that their countries could prosper by impoverishing or even attacking others. Is it possible that problems will not only become severe, but that people will entertain the thought that they have to be solved by war? While a pessimist could note that this argument does not appear as outlandish as it did before the financial crisis, an optimist could reply (correctly, in my view) that the very fact that we have seen such a sharp economic down-turn without anyone suggesting that force of arms is the solution shows that even if bad times bring about greater economic conflict, it will not make war thinkable.

#### The economy is resilient

**Washington Times 2008** – chief political correspondent for The Washington Times (7/28, Donald Lambro, The Washington Times, "Always darkest before dawn", lexis, WEA)

The doom-and-gloomers are still with us, of course, and they will go to their graves forecasting that life as we know it is coming to an end and that we are in for years of economic depression and recession. Last week, the New York Times ran a Page One story maintaining that Americans were saving less than ever, and that their debt burden had risen by an average of $117,951 per household. And the London Telegraph says there are even harder times ahead, comparing today's economy to the Great Depression of the 1930s. Wall Street economist David Malpass thinks that kind of fearmongering is filled with manipulated statistics that ignore long-term wealth creation in our country, as well as globally. Increasingly, people are investing "for the long run - for capital gains (not counted in savings) rather than current income - in preparation for retirement," he told his clients last week. Instead of a coming recession, "we think the U.S. is in gradual recovery after a sharp two-quarter slowdown, with consumer resilience more likely than the decades-old expectation of a consumer slump," Mr. Malpass said. "Fed data shows clearly that household savings of all types - liquid, financial and tangible - are still close to the record levels set in September. IMF data shows U.S. households holding more net financial savings than the rest of the world combined. Consumption has repeatedly outperformed expectations in recent quarters and year," he said. The American economy has been pounded by a lot of factors, including the housing collapse (a needed correction to bring home prices down to earth), the mortgage scandal and the meteoric rise in oil and gas prices. But this $14 trillion economy, though slowing down, continues to grow by about 1 percent on an annualized basis, confounding the pessimists who said we were plunging into a recession, defined by negative growth over two quarters. That has not happened - yet. Call me a cockeyed optimist, but I do not think we are heading into a recession. On the contrary, I'm more bullish than ever on our economy's long-term prospects.

#### Uncertainty destroys investment

**Whitefield, 11** [5/4/11, STATEMENT OF THE HONORABLE ED WHITFIELD CHAIRMAN, SUBCOMMITTEE ON ENERGY AND POWER, “The Role of the Nuclear Regulatory Commission in America’s Energy Future, http://republicans.energycommerce.house.gov/Media/file/Hearings/Energy/050411/Whitfield.pdf

While the NRC may not be the direct cause of this uncertainty – the Obama Administration’s policy is - the NRC’s actions will contribute to the uncertainty one way or another. Beyond open adjudicatory issues, the NRC has recently taken administrative action to close down its review of Yucca Mountain, which will deprive the public of the first independent government assessment of the merits of Yucca Mountain’s construction. That doesn’t bode well for a nuclear renaissance. On the front end of nuclear power development, I’m very interested to hear about whether the NRC can develop and provide more regulatory certainty in its licensing and re-licensing programs. As in other energy sectors, regulatory certainty, such as keeping to decision schedules, is essential for ensuring the investments necessary to develop nuclear energy. Additionally, I think it is worth reviewing the Commission’s organizational structure, and whether an agency rightly focused on safety is suitably structured to also facilitate the advancement of new nuclear generation. And connected with regulatory certainty, are clear and well developed safety engineering evaluations. As mentioned, the safety record of NRC is unparalleled. But recent events in Japan have raised questions in the public’s mind about how well the NRC does its job. We need to be confident the NRC is up to the task. I believe the agency is, but scrutiny is helpful to maintain the public trust. We do not want to overreact to events based on poor and faulty information or other political agendas. Nuclear power is critical to this nation. We should recognize its importance for a growing economy and not lose sight of the tremendous value a reliable, affordable power supply will mean for the future health and wealth of the United States.

#### Certainty is super

**Jamal, 12** [March, Renewables and Nuclear: Different Signals from Germany and Britain, [Carbon Clear Blog](http://carbonclear.blogspot.com/)

Carbon management consultants, emission reductions, carbon footprints and carbon offsets. Expert advice for a low-carbon future.

 <http://carbonclear.blogspot.com/2012/03/renewable-energy-will-britain-surrender.html>]

On 11 March, one year on from the [Fukushima Daiichi nuclear reactor](http://en.wikipedia.org/wiki/Fukushima_Daiichi_nuclear_disaster) meltdown in Japan, [Germany has reaffirmed its decision](http://www.nytimes.com/2012/03/13/world/europe/merkel-offers-defense-of-her-policy-on-energy.html) to abandon nuclear power. The Germans shut down their eight oldest reactors shortly after the Japanese earthquake, tsunami and reactor core breach, and pledged to shut the remaining reactors by 2022. In the short term, this has meant an increase in greenhouse gas emissions from fossil fuel power stations in Germany and neighboring countries. Over the longer term, however, Germany's leaders want to replace the country's nuclear output with renewables. Critics doubt the nation's electric grid can transport power from new renewable energy generators to power-hungry factories hundreds of miles away, but the initiative has the support of 76% of the public and Chancellor Angela Merkel has pledged to redouble her government's efforts. The very next day, the Guardian newspaper reported that [the British government wants to](http://www.guardian.co.uk/environment/2012/mar/11/uk-renewable-energy-target-nuclear-power?INTCMP=SRCH) reduce the relative priority given to renewables over nuclear. The Guardian reports that the UK has proposed to the European commission that explicit renewable energy targets for 2030 be dropped in favour of targets for "low carbon power". This label would allow countries to choose whether they wish to reach climate change - related power targets with renewables, nuclear power, carbon capture and storage or a combination of the three. While this change doesn't necessarily mean the British government would back away from its support of renewables, it leaves the door open for such a move. In fact, this policy pressure would not make sense otherwise. Just the possibility could have a chilling effect on investment in renewables in the UK. Most renewable energy technologies are characterized by high capital costs and low operational costs. The cost of renewables-based electricity can be cost-competitive or even superior to that from fossil fuels, but only when those up-front costs and long-term savings are averaged over many years. Without certainty that government will maintain its support for years or decades, investors are less likely to provide the millions, or even billions of pounds required to bring renewables to market on a large scale. Nuclear power generates significantly lower carbon emissions than fossil fuel fired power stations and - despite Fukushima - it is a proven technology with a global track record. However, it is by no means certain that the government will be able to overcome long-term opposition to nuclear power and nuclear waste in time to ensure that nuclear can play a significant role in Britain's lower-carbon future.

### QER

#### No implementation

Barlas, ‘12

[Stephen, Financial Executive Magazine, Jan/Feb, “Does the U.S. Really Need An Energy Policy?” http://wa-dcwriter.blogspot.com/2012/01/does-us-really-need-energy-policy.html]

But it is highly unlikely that Obama's Blueprint will lead to a firmer footing for U.S. energy security than past Blueprints from other presidents, or, perhaps more importantly, whether a Blueprint is even necessary. Obama's Blueprint policy is a loosely knit set of policies which focus on producing more oil at home and reducing dependence on foreign oil by developing cleaner alternative fuels and greater efficiency. The Blueprint is not the result of any particular deep thinking or strategy. The President's Council of Advisors on Science and Technology (PCAST) called for the development of such a strategy in its November 2010 Report to the President on Accelerating the Pace of Change in Energy Technologies Through an Integrated Federal Energy Policy. The PCAST called for a Quadrennial Technology Review (QTR) as the first step in preparing a Quadrennial Energy Review. The DOE completed the QTR in November 2011, six months after Obama published his Blueprint. Steven E. Koonin, Under Secretary for Science, DOE, says the QTR is limited in scope and all the DOE felt it could get done given budget and time. "Technology development absent an understanding and shaping of policy and market context in which it gets deployed is not a productive exercise," he states. At this point there is no indication that the DOE will even undertake the much more important QER, much less complete it any time soon. The larger reality is that any energy independence plan proposed by any U.S. President--whether based on a QER or not--has as much a chance of coming to fruition as Washington's hapless Redskins have of getting into the Super Bowl. In any case, the rhetoric of President after President aside, maybe the U.S. doesn't even need an energy independence or energy security policy. The biggest energy input for industrial and commercial business users is natural gas. Natural gas prices are incredibly important, both because the fuel is used directly to run industrial processes, heat facilities and commercial buildings, and make products such as fertilizers, pharmaceuticals, plastics and other advanced materials. Thanks to the Shale Revolution, the Energy Information Administration (EIA) forecasts natural gas prices will stay low for the foreseeable future, rising to $4.66 m/BTU in 2015 and $5.05 m/BTU in 2020. That is good news for the owners of 15,000 to 17,000 industrial boilers in this country, most of which use natural gas (and many of those who still use coal are switching to natural gas). In addition, companies such as Dow Chemical are restarting operations at facilities idled during the recession, Bayer is in talks with companies interested in building new ethane crackers at its two industrial parks in West Virginia, and Chevron Phillips Chemical and LyondellBasell, are considering expanding operations in the U.S. Fracking has also had a much less remarked-upon effect on petroleum prices, which are important to businesses with transportation fleets. New oil sources are spurting from the Bakken and Eagles Ford shale plays. U.S. oil prices have fallen from $133.88 a barrel of Texas intermediate crude in June 2008 to $86.07 today. The EIA predicts oil prices will rise to $94.58/bbl in 2015 and $108.10/bbl in 2020. Beyond the flood of natural gas washing over them, U.S. companies are also benefitting from three decades of investments--most of which made without federal subsidies or support--into facility energy efficiency. Ralph Cavanagh, Co-Director, Energy Program, Natural Resources Defense Council, member of Electricity Advisory Board at the DOE, says the most important single solution for U.S. businesses worried about energy prices and energy access is aggressive energy efficiency. "Energy independence is the wrong issue," he says. "It is reducing the cost of energy services and improving energy security. "U.S. business has done a tremendous job in energy efficiency over the past three decades," he states. "It takes less than one-half of a unit of energy to create $1 of economic value than it did in 1973. Industry has done that by upgrading the efficiency of process equipment and upgrading lighting." Others may well argue that the U.S. needs, and has always needed, an energy policy, but one narrowly targeted. Kenneth B Medlock III, PhD, Deputy Director, Energy Forum, James A Baker III Institute for Public Policy at Rice University, notes that the DOE and the Gas Research Institute helped develop, with federal funding, the horizontal drilling (i.e. fracking) technology that Mitchell Energy (now a part of Devon Energy) pioneered. "Government ought to be focused on research & development," he states. He also is a supporter of loan guarantees to promote investment activity in frontier technologies, and argues that as long as there are more good bets than bad bets in that kind of portfolio, the funds committed in total are a good investment. But spectacular failures like Solyndra and other less publicized busts such as Beacon Power's Chapter 11 filing kill the prospect of any additional congressional funding for energy loan guarantees of any kind. That is true even when legislation has bi-partisan support, which is the case for the Energy Savings and Industrial Competitiveness Act of 2011 (S. 1000) which would, among other things, provide grants for a revolving loan program designed to develop energy-saving technologies for industrial and commercial use. The bill passed the Senate Energy Committee by a vote of 18-3 in July. However, the Congressional Budget Office has pegged the cost of the bill's provisions at $1.2 billion over five years. That is a serious barrier to passage. And in any case, even if it did pass, the bill would simply authorize funding. Congressional appropriations committees would have to approve the money as part of the DOE's budget, which would be highly unlikely, Solyndra aside, since similar programs authorized by the 2005 and 2007 energy bills are still begging for appropriations.

#### White House blocks recommendation solvency

**Kirsh 11** (Steven T. Kirsh, Bachelor of Science and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology, "Why Obama should meet Till," 9/28/11) http://bravenewclimate.com/2011/09/28/why-obama-should-meet-till/-http://bravenewclimate.com/2011/09/28/why-obama-should-meet-till/

If you delegate this to someone else, nothing will happen. Here’s why. Delegating this letter downward from the White House to someone in DOE to evaluate will result in inaction and no follow up. I know this from past attempts that have been made. It just gets lost and there is no follow up. Every time. The guys at DOE want to do it, but they know that they will get completely stopped by OMB and OSTP. Both Carol Browner and Steven Chu asked former DOE nuclear management what to do about nuclear waste. They were told that using fast reactors and reprocessing was the way to go. But nothing happened. So Chu has given up trying. According to knowledgeable sources, the White House has told DOE in no uncertain terms, “do not build anything nuclear in the US.” It’s not clear who is making these decisions, but many people believe it is being driven by Steven Fetter in OSTP.

#### Resolved government action key to certainty – counterplan isn’t a clear choice for investors

Deutch, ‘11

[John M., Massachusetts Institute of Technology, May, “An Energy Technology Corporation Will Improve the Federal Government’s Efforts to Accelerate Energy Innovation,” http://www.brookings.edu/~/media/Research/Files/Papers/2011/5/energy%20corporation%20deutch/05\_energy\_corporation\_deutch\_paper.PDF]

IDEAL CONDITIONS FOR SUCCESSFUL TECHNOLOGY DEMONSTRATION PROGRAMS There also are important conditions for realizing a successful technology demonstration program from a selected set of projects. I list the conditions that are desirable for a successful program and compare some of these conditions with the conditions that have existed in DOE’s past demonstration efforts. 1. A stable government energy policy—for example, a known greenhouse gas emissions charge—is needed. In the absence of stable policy, a demonstration program must be pursued either on the basis of existing policy or in anticipation of changed policy. In the latter case, the demonstration project is not commercially viable so government assistance is required. A national energy plan that sets a comprehensive framework also would be welcome. Certainty about tax provisions, subsidies, and regulation guide private investment decisions, and signal which technical advances will have and which will not have value in the future. The best example is the effect that the absence of a carbon emissions charge has on investment and technology development in low-carbon electricity generation: nuclear, solar, and coal with carbon capture and sequestration. Absent a carbon charge, there is little incentive for the private sector to make such investments. It might still be sensible for the DOE to finance a technology demonstration that is “out of the money” on a commercial basis, in the absence of a carbon policy, while providing information and realistic options to the private sector if and when the policy changes. 2. Clarity about the purpose of energy policy is also important. It is easy to have a single goal and complicated to have multiple goals, especially when the combination is intended to overwhelm any doubt about the virtue of the policy. Current energy policy seeks to advance several objectives: to encourage the transition from fossil to renewable energy sources, to reduce oil imports, to reduce carbon emissions, to create jobs, to improve U.S. international competitiveness for green technologies, and to lower the costs of energy for the consumer. Alternative policy goals will involve trade-offs. For example, a carbon charge will reduce emissions but also lift the cost of electricity for the consumer. Sound public policy requires clarity about the balance struck among the trade-offs resulting from different policy choices. Sound public policy also requires a comprehensive multiyear plan that describes how the interrelated energy policies will influence different energy sectors of the economy: transportation, power, industry/commercial, and residential. Such a plan will help guide private sector deployment and technology development investment decisions. Absent a stable plan, how should a utility decide whether to build a low-cost but high-carbon-emitting pulverized coal plant for electricity generation or a high-cost but largely carbon-free nuclear power plant? A disciplined and documented procedure is needed to select the portfolio of technology demonstration projects that are intended to provide options for private sector investment. There should be explicit criteria for selecting the projects—for example, prospects for reducing emissions, reducing oil imports, stimulating renewables, creating jobs, and improving competitiveness. To reiterate, a single objective—for example, reducing emissions—is simplest, but multiple objectives are the rule and require explicit weighting in the selection process. I believe the important criteria should be reducing external environmental cost, improving energy security, and lowering the cost of energy for the U.S. consumer. Job creation and competitiveness are broader economic objectives that are not unique to the energy sector.

#### Delay

PCAST, ‘10

[President’s Council of Advisors on Science and Technology, 11-10, “REPORT TO THE PRESIDENT ON

ACCELERATING THE PACE OF CHANGE IN ENERGY TECHNOLOGIES THROUGH AN INTEGRATED FEDERAL ENERGY POLICY,” http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-energy-tech-report.pdf]

Our most important recommendation is that the Administration establish a new process that can forge a more coordinated and robust Federal energy policy, a major piece of which is advancing energy innovation. Many Executive Branch agencies and departments must be engaged, with leadership from the Executive Office of the President. This is needed because “energy policy” is an amalgam, and often derivative, of policies for environment, competitiveness, security, finance, land use, and more. The President should establish a Quadrennial Energy Review (QER) process that will provide a multiyear roadmap that lays out an integrated view of short-, intermediate-, and long-term energy objectives; outlines legislative proposals to Congress; puts forward anticipated Executive actions coordinated across multiple agencies; and identifies resource requirements for the development and implementation of energy technologies. The Secretary of Energy should provide the Executive Secretariat for the QER. While the QER will be a product of the Administration, substantial input from the Congress, the energy industry, academia, NGOs, and the public at large will be essential to the process. A staged process should be implemented now so as to provide some elements of a QER during each of the next four years. We recommend that the Secretary of Energy prepare and implement a DOE-Quadrennial Energy Review, focused on energy technology innovation, as a component of the full interagency QER on a shorter timescale. The DOE-QER should include roadmaps for key energy technologies, an integrated plan for the involvement of the national laboratories in energy programs, portfolio assessments that lay out the optimal deployment of resources, identification, and projections of demonstration projects, and identification of funding needs for each technology. This QER will also be prepared with strong input from many sources inside and outside of the Administration including industry, business, state and local governments, non-governmental organizations, and consumers. A complete and integrated QER will take longer to mature. While a good start should be made in 2011, the full government-wide QER should be targeted for delivery in early 2015. PCAST encourages Congress to use the QER as a basis for a 4-year authorization process that guides annual appropriations. The Federal investment in energy research, development, demonstration, and deployment (RDD&D) is incommensurate with the objective of leadership in energy technology innovation. We recommend a substantial increase – to $16 billion per year – in Federal support for energy RDD&D. Given the difficulty of increasing appropriated funds to this level and the importance of “front-loading” the required investment to jump start innovation, we recommend an alternative approach. The President should engage the private sector and Congress so as to generate about $10 billion per year of additional RDD&D funding through new revenue streams. This increase will provide the U.S. with the potential to leapfrog to development and deployment of the advanced energy technologies that will define a robust 21st century energy system.

#### Massive nuclear incentives just passed

**Yurman ’12** (Nuclear energy R&D budgets spared major cuts Posted on January 5, 2012 by dyurman| 3 Comments Congress trims funding while adding new priorities By Dan Yurman Dan Yurman, nuclear blogger Dan Yurman publishes Idaho Samizdat, a blog about nuclear energy, and is a frequent contributor to ANS Nuclear Cafe.

A Congress that has public approval ratings in the single digits because of deficit-related gridlock managed to get some of the federal budget out the door for 2012. The Energy & Water Appropriation Bill, **which covers funding** for the U.S. Department of Energy, contains $768 million for nuclear energy programs. Nuclear energy at the DOE fared better than some other high profile DOE programs. The Obama administration’s poster child for a green economy—Energy Efficiency & Renewable Energy—suffered a cut of $1.9 billion, reducing the funding request by the White House by more than half. The DOE’s Science programs also saw a significant reduction of $616 million from the President’s budget. And, nationwide environmental cleanup of DOE sites suffered a reduction of $469 million. Emphasis on small modular reactors Of the $768 million in the bill for the nuclear energy program at the DOE, $439 million is allocated to nuclear energy research and development. A key element of the appropriation is a $67 million line item for licensing technical support for light water reactors. It provides funds for first-of-a-kind engineering support for two reactor designs and sites. Supporters of fast reactor SMR designs had hoped for appropriation language that would have advanced their cause, but it didn’t appear in the committee report related to licensing activities. Within a line item of $136 million for reactor concepts, $29 million is provided for advanced R&D on SMR concepts that presumably would include some fast reactor work scope.

#### Food wars don’t escalate or spillover

**Paarlberg, 08 -** professor of political science at Wellesley College and a visiting professor of government at Harvard University (Robert, “The Real Food Crisis,” Chronicle of Higher Education, 6/27, lexis)

Ironically, it was only when the so-called food crisis of the 1970s came to an end, during the slow-growth decade of the 1980s, that food circumstances in poor countries significantly worsened. In Latin America, even though world **food prices** were falling sharply, the number of hungry people increased from 46 million to more than 60 million. The reason was a regional "debt crisis" triggered by higher U.S. interest rates after 1979. The number of hungry people also increased sharply in Africa during the 1980s. The reason was faltering farm production, exacerbated in some regions by severe drought and civil conflict. The price for imported food was down, but hunger was up. Most real food crises are local rather than global.

### Kritik

#### Democracy checks their K impact

**O’Kane 97 –** Prof Comparative Political Theory, U Keele (Rosemary, “Modernity, the Holocaust and politics,” Economy and Society 26:1, p 58-9, AG)

Modern bureaucracy is not 'intrinsically capable of genocidal action' (Bauman 1989: 106). Centralized state coercion has no natural move to terror. In the explanation of modern genocides it is chosen policies which play the greatest part, whether in effecting bureaucratic secrecy, organizing forced labour, implementing a system of terror, harnessing science and technology or introducing extermination policies, as means and as ends. As Nazi Germany and Stalin's USSR have shown, furthermore, those chosen policies of genocidal government turned away from and not towards modernity. The choosing of policies, however, is not independent of circumstances. An analysis of the history of each case plays an important part in explaining where and how genocidal governments come to power and analysis of political institutions and structures also helps towards an understanding of the factors which act as obstacles to modern genocide. But it is not just political factors which stand in the way of another Holocaust in modern society. Modern societies have not only pluralist democratic political systems but also economic pluralism where workers are free to change jobs and bargain wages and where independent firms, each with their own independent bureaucracies, exist in competition with state-controlled enterprises. In modern societies this economic pluralism both promotes and is served by the open scientific method. By ignoring competition and the capacity for people to move between organizations whether economic, political, scientific or social, Bauman overlooks crucial but also very 'ordinary and common' attributes of truly modern societies. It is these very ordinary and common attributes of modernity which **stand in the way of modern genocides.**

#### Ontology is useless hocus pocus and promotes authoritarianism

Philip **Graham** School of Communication Queensland University of Technology, Heidegger’s Hippies Sep 15 **1999** http://www.geocities.com/SunsetStrip/Palms/8314/index.html

To state their positions more succinctly: ‘Heraclitus maintained that everything changes: Parmenides retorted that nothing changes’ (Russell 1946: 66). Between them, they delineated the dialectical extremes within which the “problem of the subject” has become manifest: in the extremes of questions about ontology, the nature of “Being”, or existence, or ‘Existenz’ (Adorno 1973: 110-25). Historically, such arguments tend towards internalist hocus pocus: The popular success of ontology feeds on an illusion: that the state of the intentio recta might simply be chosen by a consciousness full of nominalist and subjective sediments, a consciousness which self-reflection alone has made what it is. But Heidegger, of course, saw through this illusion … beyond subject and object, beyond concept and entity. Being is the supreme concept –for on the lips of him who says “Being” is the word, not Being itself –and yet it is said to be privileged above all conceptuality, by virtue of moments which the thinker thinks along with the word “Being” and which the abstractly obtained significative unity of the concept does not exhaust. (Adorno 1973: 69) Adorno’s (1973) thoroughgoing critique of Heidegger’s ontological metaphysics plays itself out back and forth through the Heideggerian concept of a universalised identity –an essentialist, universalised being and becoming of consciousness, elided from the constraints of the social world. Adorno’s argument can be summed up thus: there can be no universal theory of “being” in and of itself because what such a theory posits is, precisely, non-identity. It obscures the role of the social and promotes a specific kind of politics –identity politics (cf. also Kennedy 1998): Devoid of its otherness, of what it renders extraneous, an existence which thus proclaims itself the criterion of thought will validate its decrees in authoritarian style, as in political practice a dictator validates the ideology of the day. The reduction of thought to the thinkers halts the progress of thought; it brings to a standstill would thought would need to be thought, and what subjectivity would need to live in. As the solid ground of truth, subjectivity is reified … Thinking becomes what the thinker has been from the start. It becomes tautology, a regressive form of consciousness. (Adorno 1973: 128). Identity politics – the ontological imperative – is inherently authoritarian precisely because it promotes regression, internalism, subjectivism, and, most importantly, because it negates the role of society. It is simplistic because it focuses on the thingliness of people: race, gender, ethnicity. It tries to resolve the tension of the social-individual by smashing the problem into two irreconcilable parts. Identity politics’ current popularity in sociological thought, most well-evidenced by its use and popularity in “Third Way” politics, can be traced back to a cohort I have called Heidegger’s Hippies –the failed, half-hearted, would-be “revolutionaries” of the 60s, an incoherent collection of middle-class, neo-liberal malcontents who got caught up in their own hyperbole, and who are now the administrators of a ‘totally administered’ society in which hyperbole has become both lingua franca and world currency (Adorno 1964/1973 1973).

#### Framework – the k needs to prove the whole plan is bad– any other interp moots aff offense and decreases policy education

#### Epistemological debate is irrelevant - concrete action is inevitable - they fail to create useful knowledge

**Friedrichs, 09** [Jorg, University Lecturer in Politics at the Oxford Department of International Development, “From Positivist Pretense to Pragmatic Practice Varieties of Pragmatic Methodology in IR Scholarship” Pragmatism and International Relations]

As Friedrich Nietzsche ([1887] 1994:1; cf. Wilson 2002) knew, the knower isstrangely unknown to himself. In fact, it is much morehazardous to contemplate theway how we gain knowledge than to gain such knowledge in the ﬁrst place. This is not to deny that intellectuals are a narcissistic Kratochwil lot, with a penchant for omphaloskepsis. The typical result of their navel-gazing, however, is not increased self-awareness. Scholars are more likely to come up with ex-post-facto rationalizations of how they would like to see their activity than with accurate descriptions of how they go about business. As a result, in science there is a paradoxical divide between positivist pretenseand pragmatic practice. Many prominent scholars proceed pragmatically in gen-erating their knowledge, only to vest it all in a positivist cloak when it comes topresenting results. In the wake of Karl Popper (1963), fantasies about ingeniousconjectures and inexorable refutations continue to hold sway despite the muchmore prosaic way most scholars grope around in the formulation of their theo-ries, and the much less rigorous way they assess the value of their hypotheses. In proposing pragmatism as a more realistic alternative to positivist idealiza-tions, I am not concerned with the original intentions of Charles Peirce. Theseare discussed and enhanced by Ryto¨ vuori-Apunen (this forum). Instead, Ipresent various attempts to make pragmatism work as a methodology for IR scholarship. This includes my own preferred methodology, the pragmaticresearch strategy of abduction. As Fritz Kratochwil and I argue elsewhere, abduction should be at the center of our efforts, while deduction and induction areimportant but auxiliary tools (Friedrichs and 2009).Of course, one does not need to be a pragmatist to proceed in a pragmatic way. Precisely because it is derived from practice, pragmatic commonsense is a sold as the hills. For example, James Rosenau (1988:164) declared many yearsago that he coveted ‘‘a long-held conviction that one advances knowledge most effectively by continuously moving back and forth between very abstract and very empirical levels of inquiry, allowing the insights of the former to exert pressurefor the latter even as the ﬁndings of the latter, in turn, exert pressure for the for-mer, thus sustaining an endless cycle in which theory and research feed on eachother.’’ This was shortly before Rosenau’s turn to postmodernism, while he wasstill touting the virtues of behaviorism and standard scientiﬁc requisites, such asindependent and dependent variables and theory testing. But if we take his state-ment at face value, it appears that Rosenau-the-positivist was guided by a sort of pragmatism for all but the name. While such practical commonsense is certainly valuable, in and by itself, it does not qualify as scientiﬁc methodology. Science requires a higher degree of methodological awareness. For this reason, I am not interested here in pragma-tism as unspoken commonsense, or as a pretext for doing empirical researchunencumbered by theoretical and methodological considerations. Nor am I con-cerned with pragmatism as an excuse for staging yet another epistemological debate. Instead, I am interested in pragmatism as an instrument to go about research with an appropriate degree of epistemological and methodologicalawareness. Taking this criterion as my yardstick, the following three varieties of pragmatist methodology in recent IR scholarship are worth mentioning: theory synthesis, analytic eclecticism (AE), and abduction.Theory synthesis is proposed by Andrew Moravcsik (2003), who claims that theories can be combined as long as they are compatible at some unspeciﬁedfundamental level, and that data will help to identify the right combination of theories. He does not explicitly invoke pragmatism but vests his pleading in apositivist cloak by using the language of theory testing. When looking closer,however, it becomes apparent that his theoretical and methodological noncha-lance is far more pragmatic than what his positivist rhetoric suggests. Moravcsiksees himself in good company, dropping the following names: Robert Keohane,Stephen Walt, Jack Snyder, Stephen Van Evera, Bary Buzan, Bruce Russett, John O’Neal, Martha Finnemore, and Kathryn Sikkink. With the partial excep-tion of Finnemore, however, none of these scholars explicitly links his or herscholarship to pragmatism. They employ pragmatic commonsense in theirresearch, but devoutly ignore pragmatism as a philosophical and methodologicalposition. As a result, it is fair to say that theory synthesis is only on a slightly higher level of intellectual awareness than Rosenau’s statement quoted above. Analytic eclecticism, as advertized by Peter Katzenstein and Rudra Sil, links acommonsensical approach to empirical research with a more explicit commit-ment to pragmatism (Sil and Katzenstein 2005; Katzenstein and Sil 2008).The 7 Even the dean of critical rationalism, Karl Popper, is ‘‘guilty’’ of lapses into pragmatism, for example when hestates that scientists, like hungry animals, classify objects according to needs and interests, although with the impor-tant difference that they are guided in their quest for ﬁnding regularities not so much by the stomach but ratherby empirical problems and epistemic interests (Popper 1963:61–62). 646 Pragmatism and International Relations idea is to combine existing research traditions in a pragmatic fashion and thusto enable the formulation and exploration of novel and more complex sets of problems. The constituent elements of different research traditions are trans-lated into mutually compatible vocabularies and then recombined in novel ways.This implies that most scholars must continue the laborious process of formulat-ing parochial research traditions so that a few cosmopolitan colleagues will beenabled to draw upon their work and construct syncretistic collages. 8 In additionto themselves, Katzenstein and Sil cite a number of like-minded scholars such asCharles Tilly, Sidney Tarrow, Paul Pierson, and Robert Jervis. 9 The ascription isprobably correct given the highly analytical and eclectic approach of these schol-ars. Nevertheless, apart from Katzenstein and Sil themselves none of these schol-ars has explicitly avowed himself to AE.My preferred research strategy is abduction, which is epistemologically asself-aware as AE but minimizes the dependence on existing research traditions.The typical situation for abduction is when we, both in everyday life and as socialscientists, become aware of a certain class of phenomena that interests us for somereason, but for which we lack applicable theories. We simply trust, although we donot know for certain, that the observed class of phenomena is not random. Wetherefore start collecting pertinent observations and, at the same time, applyingconcepts from existing ﬁelds of our knowledge. Instead of trying to impose anabstract theoretical template (deduction) or ‘‘simply’’ inferring propositions fromfacts (induction), we start reasoning at an intermediate level (abduction). Abduction follows the predicament that science is, or should be, above all amore conscious and systematic version of the way by which humans have learnedto solve problems and generate knowledge in their everyday lives. As it iscurrently practiced, science is often a poor emulator of what we are able toachieve in practice. This is unfortunate because human practice is the ultimatemiracle. In our own practice, most of us manage to deal with many challenging situations. The way we accomplish this is completely different from**,** and far moreefﬁcient than, the way knowledge is generated according to standard scientiﬁc methods. If it is true that in our own practice we proceed not so much by induction or deduction but rather by abduction, then science would do well tomimic this at least in some respects. 10 Abduction has been invoked by numerous scholars, including Alexander Wendt, John Ruggie, Jeffrey Checkel, Martin Shapiro, Alec Stone Sweet, andMartha Finnemore. While they all use the term abduction, none has ever thor-oughly speciﬁed its meaning. To make up for this omission, I have developedabduction into an explicit methodology and applied it in my own research oninternational police cooperation (Friedrichs 2008). Unfortunately, it is impossi-ble to go into further detail here. Readers interested in abduction as a way toadvance international research and methodology can also be referred to my recent article with Fritz Kratochwil (Friedrichs and Kratochwil 2009).On a ﬁnal note, we should be careful not to erect pragmatism as the ultimateepistemological fantasy to caress the vanity of Nietzschean knowers unknown tothemselves, namely that they are ingeniously ‘‘sorting out’’ problematic situa-tions. Scientiﬁc inquiry is not simply an intimate encounter between a researchproblem and a problem solver. It is a social activity taking place in communitiesof practice (Wenger 1998). Pragmatism must be neither reduced to the utility of results regardless of their social presuppositions and meaning, nor to the 8 Pace Rudra Sil (this forum), the whole point about eclecticism is that you rely on existing traditions to blendthem into something new. There is no eclecticism without something to be eclectic about. 9 One may further expand the list by including the international society approach of the English school (Ma-kinda 2000), as well as the early Kenneth Waltz (1959). 10 Precisely for this reason, abduction understood as ‘Inference to the Best Explanation’ plays a crucial role inthe ﬁeld of Artiﬁcial Intelligence. 647 The Forum fabrication of consensus among scientists. Pragmatism as the practice of dis-cursive communities and pragmatism as a device for the generation of useful knowledge are two sides of the same coin

#### Prefer util

Cummiskey 90 – Professor of Philosophy, Bates (David, Kantian Consequentialism, Ethics 100.3, p 601-2, p 606, jstor, AG)

We must not obscure the issue by characterizing this type of case as the sacrifice of individuals for some abstract "social entity." It is not a question of some persons having to bear the cost for some elusive "overall social good." Instead, the question is whether some persons must bear the inescapable cost for the sake of other persons. Nozick, for example, argues that "to use a person in this way does not sufficiently respect and take account of the fact that he is a separate person, that his is the only life he has."30 Why, however, is this not equally true of all those that we do not save through our failure to act? By emphasizing solely the one who must bear the cost if we act, one fails to sufficiently respect and take account of the many other separate persons, each with only one life, who will bear the cost of our inaction. In such a situation, what would a conscientious Kantian agent, an agent motivated by the unconditional value of rational beings, choose? We have a duty to promote the conditions necessary for the existence of rational beings, but both choosing to act and choosing not to act will cost the life of a rational being. Since the basis of Kant's principle is "rational nature exists as an end-in-itself' (GMM, p. 429), the reasonable solution to such a dilemma involves promoting, insofar as one can, the conditions necessary for rational beings. If I sacrifice some for the sake of other rational beings, I do not use them arbitrarily and I do not deny the unconditional value of rational beings. **Persons** may **have "dignity**, an unconditional and incomparable value" that transcends any market value (GMM, p. 436), **but**, as rational beings, persons **also** have **a fundamental equality which dictates that some must** sometimes **give way for the sake of others.** The formula of the end-in-itself thus does not support the view that we may never force another to bear some cost in order to benefit others. If one focuses on the equal value of all rational beings, then equal consideration dictates that one sacrifice some to save many. [continues] According to Kant, the objective end of moral action is the existence of rational beings. Respect for rational beings requires that, in deciding what to do, one give appropriate practical consideration to the unconditional value of rational beings and to the conditional value of happiness. Since agent-centered constraints require a non-value-based rationale, the most natural interpretation of the demand that one give equal respect to all rational beings lead to a consequentialist normative theory. We have seen that there is no sound Kantian reason for abandoning this natural consequentialist interpretation. In particular, a consequentialist interpretation does not require sacrifices which a Kantian ought to consider unreasonable, and it does not involve doing evil so that good may come of it. It simply requires an uncompromising commitment to the equal value and equal claims of all rational beings and a recognition that, in the moral consideration of conduct, one's own subjective concerns do not have overriding importance.

### Chemical Industry Add-on

#### APS solves chemical industry

**Fischetti** et all **9** [“Proceedings of the¶ Advanced Photon Source Renewal Workshop”¶ Hickory Ridge Marriott Conference Hotel¶ Presentation to Department of Energy¶ October 20-21, 2008¶ February 2009¶ Robert F. Fischetti Argonne National Laboratory, Biosciences Division;¶ APS Life Sciences Council representative¶ Paul H. Fuoss Argonne National Laboratory, Materials Science Division;¶ APS Users Organization representative¶ Rodney E. Gerig Argonne National Laboratory, Photon Sciences, Denis T. Keane Northwestern University;¶ DuPont-Northwestern-Dow Collaborative Access Team;¶ APS Partner User Council representative¶ John F. Maclean Argonne National Laboratory, APS Engineering Division¶ Dennis M. Mills, Chair Argonne National Laboratory, Photon Sciences, Dan A. Neumann National Institute of Standards and Technology; APS Scientific Advisory Committee representative¶ George Srajer Argonne National Laboratory, X-ray Science Division]

Within solutions themselves, self-assembly and ordering of ions or molecules at interfaces is important in many biotic and abiotic processes. Phase-transfer catalysis,¶ pharmaceutical drug delivery, many electrochemical processes, nanoparticle synthesis, and numerous chemical reactions take place at the interface between two immiscible liquids. Important environmental processes that rely upon interactions at interfaces include tertiary oil recovery, solvent extraction of radionuclides from nuclear¶ waste, and permeation liquid membranes used for the cleanup of ions in the environment. For example, biological membranes at aqueous-aqueous boundaries are fundamental to cell chemistry and processes. In the area of separations science—a¶ cornerstone of the chemical industry—solvent extraction and other metals separations technologies rely heavily on the transfer of metal ions across an interface.¶ Significance of the APS¶ Understanding solution and materials chemistry requires knowledge of structure at¶ the atomic level. Most of the standard structural characterization tools provide highquality information on bulk, periodic, or crystalline materials. Equally high-quality¶ characterization is needed for amorphous materials, solutions, and complex nanostructures. Synchrotron-based techniques can now be used to characterize samples¶ irrespective of their state of crystallinity via different scattering and spectroscopic¶ methods. X-rays are providing structural details at length scales that encompass¶ local structure from about an ion to the long-range ordering present in well-formed¶ crystalline materials, and have found applications in solutions, glasses, liquids, poorquality crystals, powders (which can be multiphase), assemblies of micro-crystals, adsorbed surface layers, etc. Moreover, the evolution of structure under reaction¶ conditions is also an important feature of a catalytic system that needs to be investigated and understood. Techniques most often used for analysis of catalytic materials¶ include x-ray diffraction and scattering, pair distribution function (PDF), small-angle¶ scattering (SAXS) and x-ray absorption spectroscopy (EXAFS and x-ray absorption¶ near-edge fine structure, XANES).¶ Current APS techniques and potential upgrades in capabilities¶ Synchrotron x-ray powder diffraction (SXRPD) is a core competency for structural¶ analysis of catalytic nanoparticles. The major application of SXRPD is structural¶ analysis of new catalytic materials using Rietveld refinement (e.g., zeolites and mixed oxides). In recent years, there has also been much interest in in situ catalyst¶ research. Having a beamline with capabilities for in situ measurements would be¶ highly advantageous to the catalysis community, as many metallic nanoparticles are¶ highly oxidized in ambient air.

**A strong chemical industry prevents extinction**

**Baum ’99** (Rudy M., C&EN Washington, Chemical and Engineering News, Millennium Special Report, 12-6, http://pubs.acs.org/hotartcl/cenear/991206/7749spintro2.html)

Here is the fundamental challenge we face: The world's growing and aging population must be fed and clothed and housed and transported in ways that do not perpetuate the environmental devastation wrought by the first waves of industrialization of the 19th and 20th centuries. As we increase our output of goods and services, as we increase our consumption of energy, as we meet the imperative of raising the standard of living for the poorest among us, we must learn to carry out our economic activities sustainably. There are optimists out there, C&EN readers among them, who believe that the history of civilization is a long string of technological triumphs of humans over the limits of nature. In this view, the idea of a "carrying capacity" for Earth—a limit to the number of humans Earth's resources can support—is a fiction because technological advances will continuously obviate previously perceived limits. This view has historical merit. Dire predictions made in the 1960s about the exhaustion of resources ranging from petroleum to chromium to fresh water by the end of the 1980s or 1990s have proven utterly wrong. While I do not count myself as one of the technological pessimists who see technology as a mixed blessing at best and an unmitigated evil at worst, I do not count myself among the technological optimists either. There are environmental challenges of transcendent complexity that I fear may overcome **us and our** Earth before technological progress can come to our rescue. Global climate change, the accelerating destruction of terrestrial and oceanic habitats, the catastrophic loss of species across the plant and animal kingdoms—these are problems that are not obviously amenable to straightforward technological solutions. But I know this, too: Science and technology have brought us to where we are, and only science and technology, coupled with innovative social and economic thinking, can take us to where we need to be in the coming millennium. Chemists, chemistry, and the chemical industry—what we at C&EN call the chemical enterprise—will play central roles in addressing these challenges. The first section of this Special Report is a series called "Millennial Musings" in which a wide variety of representatives from the chemical enterprise share their thoughts about the future of our science and industry. The five essays that follow explore the contributions the chemical enterprise is making right now to ensure that we will successfully meet the challenges of the 21st century. The essays do not attempt to predict the future. Taken as a whole, they do not pretend to be a comprehensive examination of the efforts of our science and our industry to tackle the challenges I've outlined above. Rather, they paint, in broad brush strokes, a portrait of scientists, engineers, and business managers struggling to make a vital contribution to humanity's future. The first essay, by Senior Editor Marc S. Reisch, is a case study of the chemical industry's ongoing transformation to sustainable production. Although it is not well known to the general public, the chemical industry is at the forefront of corporate efforts to reduce waste from production streams to zero. Industry giants DuPont and Dow Chemical are taking major strides worldwide to manufacture chemicals while minimizing the environmental "footprint" of their facilities. This is an ethic that starts at the top of corporate structure. Indeed, Reisch quotes Dow President and Chief Executive Officer William S. Stavropolous: "We must integrate elements that historically have been seen as at odds with one another: the triple bottom line of sustainability—economic and social and environmental needs." DuPont Chairman and CEO Charles (Chad) O. Holliday envisions a future in which "biological processes use renewable resources as feedstocks, use solar energy to drive growth, absorb carbon dioxide from the atmosphere, use low-temperature and low-pressure processes, and produce waste that is less toxic." But sustainability is more than just a philosophy at these two chemical companies. Reisch describes ongoing Dow and DuPont initiatives that are making sustainability a reality at Dow facilities in Michigan and Germany and at DuPont's massive plant site near Richmond, Va. Another manifestation of the chemical industry's evolution is its embrace of life sciences. Genetic engineering is a revolutionary technology. In the 1970s, research advances fundamentally shifted our perception of DNA. While it had always been clear that deoxyribonucleic acid was a chemical, it was not a chemical that could be manipulated like other chemicals—clipped precisely, altered, stitched back together again into a functioning molecule. Recombinant DNA techniques began the transformation of DNA into just such a chemical, and the reverberations of that change are likely to be felt well into the next century. Genetic engineering has entered the fabric of modern science and technology. It is one of the basic tools chemists and biologists use to understand life at the molecular level. It provides new avenues to pharmaceuticals and new approaches to treat disease. It expands enormously agronomists' ability to introduce traits into crops, a capability seized on by numerous chemical companies. There is no doubt that this powerful new tool will play a major role in feeding the world's population in the coming century, but its adoption has hit some bumps in the road. In the second essay, Editor-at-Large Michael Heylin examines how the promise of agricultural biotechnology has gotten tangled up in real public fear of genetic manipulation and corporate control over food. The third essay, by Senior Editor Mairin B. Brennan, looks at chemists embarking on what is perhaps the greatest intellectual quest in the history of science—humans' attempt to understand the detailed chemistry of the human brain, and with it, human consciousness. While this quest is, at one level, basic research at its most pure, it also has enormous practical significance. Brennan focuses on one such practical aspect: the effort to understand neurodegenerative diseases like Alzheimer's disease and Parkinson's disease that predominantly plague older humans and are likely to become increasingly difficult public health problems among an aging population. Science and technology are always two-edged swords. They bestow the power to create and the power to destroy. In addition to its enormous potential for health and agriculture, genetic engineering conceivably could be used to create horrific biological warfare agents. In the fourth essay of this Millennium Special Report, Senior Correspondent Lois R. Ember examines the challenge of developing methods to counter the threat of such biological weapons. "Science and technology will eventually produce sensors able to detect the presence or release of biological agents, or devices that aid in forecasting, remediating, and ameliorating bioattacks," Ember writes. Finally, Contributing Editor Wil Lepkowski discusses the most mundane, the most marvelous, and the most essential molecule on Earth, H2O. Providing clean water to Earth's population is already difficult—and tragically, not always accomplished. Lepkowski looks in depth at the situation in Bangladesh—where a well-meaning UN program to deliver clean water from wells has poisoned millions with arsenic. Chemists are working to develop better ways to detect arsenic in drinking water at meaningful concentrations and ways to remove it that will work in a poor, developing country. And he explores the evolving water management philosophy, and the science that underpins it, that will be needed to provide adequate water for all its vital uses. In the past two centuries, our science has transformed the world. Chemistry is a wondrous tool that has allowed us to understand the structure of matter and gives us the ability to manipulate that structure to suit our own purposes. It allows us to dissect the molecules of life to see what makes them, and us, tick. It is providing a glimpse into workings of what may be the most complex structure in the universe, the human brain, and with it hints about what constitutes consciousness. In the coming decades, we will use chemistry to delve ever deeper into these mysteries and provide for humanity's basic and not-so-basic needs.

## 1ar

### Science Diplomacy

**Science diplomacy fails**

**Dickson 9** – journalist for SciDev (David, Dir. SciDev.Net, “The limits of science diplomacy”, 6-4, http://www.scidev.net/en/climate-change-and-energy/science-networks/editorials/the-limits-of-science-diplomacy.html)

The scientific community has a deserved reputation for its international perspective — scientists often ignore national boundaries and interests when it comes to exchanging ideas or collaborating on global problems. So it is not surprising that science attracts the interest of politicians keen to open channels of communication with other states. Signing agreements on scientific and technological cooperation is often the first step for countries wanting to forge closer working relationships. More significantly, scientists have formed key links behind-the-scenes when more overt dialogue has been impossible. At the height of the Cold War, for example, scientific organisations provided a conduit for discussing nuclear weapons control. Only so much science can do Recently, the Obama administration has given this field a new push, in its desire to pursue "soft diplomacy" in regions such as the Middle East. Scientific agreements have been at the forefront of the administration's activities in countries such as Iraq and Pakistan. But — as emerged from a meeting entitled New Frontiers in Science Diplomacy, held in London this week (1–2 June) — using science for diplomatic purposes is not as straightforward as it seems. Some scientific collaboration clearly demonstrates what countries can achieve by working together. For example, a new synchrotron under construction in Jordan is rapidly becoming a symbol of the potential for teamwork in the Middle East. But whether scientific cooperation can become a precursor for political collaboration is less evident. For example, despite hopes that the Middle East synchrotron would help bring peace to the region, several countries have been reluctant to support it until the Palestine problem is resolved. Indeed, one speaker at the London meeting (organised by the UK's Royal Society and the American Association for the Advancement of Science) even suggested that the changes scientific innovations bring inevitably lead to turbulence

**1AR stopped here**

and upheaval. In such a context, viewing science as a driver for peace may be wishful thinking. Conflicting ethos Perhaps the most contentious area discussed at the meeting was how science diplomacy can frame developed countries' efforts to help build scientific capacity in the developing world. There is little to quarrel with in collaborative efforts that are put forward with a genuine desire for partnership. Indeed, partnership — whether between individuals, institutions or countries — is the new buzzword in the "science for development" community. But true partnership requires transparent relations between partners who are prepared to meet as equals. And that goes against diplomats' implicit role: to promote and defend their own countries' interests. John Beddington, the British government's chief scientific adviser, may have been a bit harsh when he told the meeting that a diplomat is someone who is "sent abroad to lie for his country". But he touched a raw nerve. Worlds apart yet co-dependent The truth is that science and politics make an uneasy alliance. Both need the other. Politicians need science to achieve their goals, whether social, economic or — unfortunately — military; scientists need political support to fund their research. But they also occupy different universes. Politics is, at root, about exercising power by one means or another. Science is — or should be — about pursuing robust knowledge that can be put to useful purposes. A strategy for promoting science diplomacy that respects these differences deserves support. Particularly so if it focuses on ways to leverage political and financial backing for science's more humanitarian goals, such as tackling climate change or reducing world poverty. But a commitment to science diplomacy that ignores the differences — acting for example as if science can substitute politics (or perhaps more worryingly, vice versa), is dangerous. The Obama administration's commitment to "soft power" is already faltering. It faces challenges ranging from North Korea's nuclear weapons test to domestic opposition to limits on oil consumption. A taste of reality may be no bad thing.

### Nuclear War Causes Extinction

Even limited nuclear war causes extinction

Starr 9 – independent writer who has been published by the Bulletin of the Atomic Scientists and the Moscow Institute of Physics and Technology Center for Arms Control, Energy and Environmental Studies (Steven, Bulletin of Atomic Scientists and Moscow Inst. Of Physics, “Catastrophic Climatic Consequences of Nuclear Conflict,” Int’l Network of Engineers and Scientists Against Proliferation, http://inesap.org/node/11)

Toon et al. calculated that a “regional” nuclear war which employed this targeting strategy would create 1-5 million metric tons of soot from the burning cities.16 Robock et al. used the NASA climate model to demonstrate that this soot would be lofted to near the top of the stratosphere.17 There the smoke would remain, far above the area where weather occurs, for at least a decade – about ten times longer than previously thought possible. Further modeling demonstrated that smoke particles from much larger nuclear conflicts would also remain in the upper stratosphere for a decade or more,18 and these findings provided the basis for rejecting the conclusion of the studies which suggested that “nuclear autumn” instead of nuclear winter would follow a full-scale war. Robock’s team also discovered that smoke in the sub-tropical latitudes would undergo more solar heating than smoke studied in previous nuclear winter scenarios, and this heating would insure that the smoke particles would be lofted into the stratosphere year-round, regardless of the month in which the war would occur.19 Consequently, the massive smoke emissions from the fires of a small “regional” nuclear war would cause a global climate change unprecedented

in human history. In a matter of days, temperatures around the Earth would become colder than those experienced during the pre-industrial Little Ice Age (which occurred from approximately 1400 to 1850).20 Growing seasons in the middle latitudes would immediately be significantly shortened, completely eliminating some crops that had insufficient time to reach maturity.

### GTRI

#### GTRI doesn’t solve most spent fuel – plan is key

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(Matthew and Eben, “Consolidation: Thwarting Nuclear Theft”, <http://belfercenter.ksg.harvard.edu/files/Consolidation_Thwarting_Nuclear_Theft_corrected.pdf>, dml)

GTRI estimates that there are still 29 HEU-fueled research reactors that it does not plan to help convert or shut down. The majority of these facilities are critical assemblies or pulse reactors in Russia, and the remainder are critical assemblies and pulse reactors in other countries; all these reactors would be addressed if the recommendations above were implemented. There are, however, a substantial number of HEU-fueled reactors that are so far beyond GTRI’s planning they do not make it onto the official lists. The largest global users of HEU every year are U.S. and Russian naval reactors (see “The Challenge of HEU Naval Fuel,” p. 32), and there is little prospect for their conversion. Similarly, there is one commercial and one experimental fast-neutron reactors that use HEU fuel today—though in the future, power reactors of this type are expected to use plutonium as their fuel. These include the BN-600 commercial reactor in Russia (which uses medium-enriched material in the 22-27% enrichment range), along with the BOR-60 experimental reactor in Russia and a new fast neutron research reactor being planned; the recently opened China Experimental Fast Reactor (CEFR), which uses 64% enriched material; and the experimental Joyo reactor in Japan. 61 Most other fast reactors use plutonium fuel. A large commercial fast reactor, the BN-800, is under construction in Russia, and is slated to use plutonium fuel. Most of these reactors have troubled operating histories, and might shut down (as the world’s other fast reactors have done in the past). Moreover, fast reactors to date have been uneconomic, and this is unlikely to change for decades to come. The United States should encourage countries to consider the full costs and risks before embarking on fast reactor programs. In any case, future fast reactors, to the extent they are built in the near term, are likely to be plutonium-fueled rather then HEU-fueled, though it is not clear that offers any significant proliferation advantage compared to the use of HEU in the 20-30% range, which itself would be difficult to use to make a nuclear bomb. Avoiding the Spread of Weapons-Usable Material Production The broad range of steps needed to reduce the danger of nuclear proliferation are beyond the scope of this paper. But one element that is clearly related to consolidation is to ensure that new states do not begin producing plutonium or HEU, creating new potential sources for nuclear theft. This includes addressing the nuclear programs of North Korea and Iran, and limiting the spread of enrichment and reprocessing facilities—the key technologies that make it possible to produce weaponsusable nuclear material. Recommendation: The United States should work with other countries to engage North Korea and Iran, putting together packages of incentives and disincentives that convince these governments that it is in their national interests not to have nuclear weapons or capabilities to manufacture them rapidly. Recommendation: The United States and other interested countries should continue to pursue multiple means to limit the spread of enrichment and reprocessing plants. 62 (See below for a discussion of plutonium reprocessing facilities in particular.) They should continue working to establish an International Framework for Nuclear Energy Cooperation that would provide assured supplies of fresh nuclear fuel and cooperative management of spent nuclear fuel, reducing incentives for states to build their own enrichment and reprocessing facilities (and heightening attention to the possible ulterior motives of those who nevertheless choose to do so). The United States and other interested countries should also explore options for international ownership, management, and staffing of fuel cycle facilities, seeking approaches that could reduce the proliferation and terrorism threats these facilities pose.