**Michigan is open source so they said go ahead and include the full text.**

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**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 atmospherehas 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 allretreating 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 drownnearly 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.

**And warming disproportionately affects the global South**

Carrington 11 – Head of the environment at The Guardian (Damian, “Map reveals stark divide in who caused climate change and who's being hit”, <http://www.guardian.co.uk/environment/damian-carrington-blog/2011/oct/26/climate-change-developing-country-impacts-risk?CMP=twt_gu>, October 26th, 2011, KTOP)

When the world's nations convene in Durban in November in the latest attempt to inch towards a global deal to tackle climate change, one fundamental principle will, as ever, underlie the negotiations. Is is the contention that while rich, industrialised nations caused climate change through past carbon emissions, it is the developing world that is bearing the brunt. It follows from that, developing nations say, that the rich nations must therefore pay to enable the developing nations to both develop cleanly and adapt to the impacts of global warming. The point is starkly illustrated in a new map of climate vulnerability (above): the rich global north has low vulnerability, the poor global south has high vulnerability. The map is produced by risk analysts Maplecroft by combining measures of the risk of climate change impacts, such as storms, floods, and droughts, with the social and financial ability of both communities and governments to cope. The top three most vulnerable nations reflect all these factors: Haiti, Bangladesh, Zimbabwe. But it is not until you go all the way down 103 on the list, out of 193 nations, that you encounter the first major developed nation: Greece. The first 102 nations are all developing ones. Italy is next, at 124, and like Greece ranks relatively highly due to the risk of drought. The UK is at 178 and the country on Earth least vulnerable to climate change, according to Maplecroft, is Iceland. "Large areas of north America and northern Europe are not so exposed to actual climate risk, and are very well placed to deal with it," explains Charlie Beldon, principal analyst at Maplecroft. The vulnerability index has been calculated down to a resolution of 25km2 and Beldon says at this scale the vulnerability of the developing world's fast growing cities becomes clear. "A lot of big cities have developed in exposed areas such as flood plains, such as in south east Asia, and in developing economies they so don't have the capacity to adapt." Of the world's 20 fastest growing cities, six are classified as 'extreme risk' by Maplecroft, including Calcutta in India, Manila in the Philippines, Jakarta in Indonesia and Dhaka and Chittagong in Bangladesh. Addis Ababa in Ethiopia also features. A further 10 are rated as 'high risk' including Guangdong, Mumbai, Delhi, Chennai, Karachi and Lagos. "Cities such as Manila, Jakarta and Calcutta are vital centres of economic growth in key emerging markets, but heat waves, flooding, water shortages and increasingly severe and frequent storm events may well increase as climate changes takes hold," says Beldon. With the world on the verge of a population of seven billion people, the rapid urbanisation of many developing countries remains one of the major demographic trends, but piles on risk because of the higher pressure on resources, such as water, and city infrastructure, like roads and hospitals.

**Warming causes extinction**

**Sify 2010 –** Sydney newspaper citing Ove Hoegh-Guldberg, professor at University of Queensland and Director of the Global Change Institute, and John Bruno, associate professor of Marine Science at UNC (Sify News, “Could unbridled climate changes lead to human extinction?”, <http://www.sify.com/news/could-unbridled-climate-changes-lead-to-human-extinction-news-international-kgtrOhdaahc.html>, WEA)

The findings of the comprehensive report: 'The impact of climate change on the world's marine ecosystems' emerged from a synthesis of recent research on the world's oceans, carried out by two of the world's leading marine scientists. One of the authors of the report is Ove Hoegh-Guldberg, professor at The University of Queensland and the director of its Global Change Institute (GCI). 'We may see sudden, unexpected changes that have serious ramifications for the overall well-being of humans,including the capacity of the planet to support people. This is further evidence that we are well on the way to the next great extinction event,' says Hoegh-Guldberg. 'The findings have enormous implications for mankind, particularly if the trend continues. The earth's ocean, which produces half of the oxygen we breathe and absorbs 30 per cent of human-generated carbon dioxide, is equivalent to its heart and lungs. This study shows worrying signs of ill-health. It's as if the earth has been smoking two packs of cigarettes a day!,' he added. 'We are entering a period in which the ocean services upon which humanity depends are undergoing massive change and in some cases beginning to fail', he added. The 'fundamental and comprehensive'changes to marine life identified in the report include rapidly warming and acidifying oceans, changes in water circulation and expansion of dead zones within the ocean depths. These are driving major changes in marine ecosystems: less abundant coral reefs, sea grasses and mangroves (important fish nurseries); fewer, smaller fish; a breakdown in food chains; changes in the distribution of marine life; and more frequent diseases and pests among marine organisms. Study co-author John F Bruno, associate professor in marine science at The University of North Carolina, says greenhouse gas emissions are modifying many physical and geochemical aspects of the planet's oceans, in ways 'unprecedented in nearly a million years'. 'This is causing fundamental and comprehensive changes to the way marine ecosystems function,' Bruno warned, according to a GCI release. These findings were published in Science

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

**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, "Why We Should Build an Integral Fast Reactor Now," 11/25/9) <http://skirsch.wordpress.com/2009/11/25/ifr/>

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 whyrestarting 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 2001-2002of 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.

**Inventing something cheaper is key – 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:/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) isalso 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 requireall 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.

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**Advantage 2: Russia**

**IFNEC is faltering - without U.S. participation in advanced reprocessing technologies, an international fuel bank tying together the US, Russia, and Japan falls apart**

Tim Gitzel, July 2012, senior vice-president and chief operating officer and was appointed president, President and CEO of Cameco, extensive experience in Canadian and international uranium mining activities, executive vice-president, mining business unit for AREVA, College of Law at the University of Saskatchewan, serves as vice-chair on both the Mining Association of Canada and the Canadian Nuclear Association boards of directors, past president of the Saskatchewan Mining Association, and has served on the boards of Sask Energy, co-chair of the Royal Care campaign, a recipient of the Centennial Medal, World Nuclear Association (WNA),  “International Framework for Nuclear Energy Cooperation (formerly Global Nuclear Energy Partnership),” <http://www.world-nuclear.org/info/inf117_international_framework_nuclear_energy_cooperation.html>

The International Framework for Nuclear Energy Cooperation (IFNEC), formerly the Global Nuclear Energy Partnership (GNEP), aims to accelerate the development and deployment of advanced nuclear fuel cycle technologies while providing greater disincentives to the proliferation of nuclear weapons. GNEP was initiated by the USA early in 2006, but picked up on concerns and proposals from the International Atomic Energy Agency (IAEA) and Russia. The vision was for a global network of nuclear fuel cycle facilities all under IAEA control or at least supervision. Domestically in the USA, the Global Nuclear Energy Partnership (GNEP) was based on the Advanced Fuel Cycle Initiative (AFCI), and while GNEP faltered with the advent of the Barack Obama administration in Washington from 2008, the AFCI is being funded at higher levels than before for R&D "on proliferation-resistant fuel cycles and waste reduction strategies." Two significant new elements in the strategy are new reprocessing technologies which separate all transuranic elements together (and not plutonium on its own), and advanced burner (fast) reactors to consume the result of this while generating power. GNEP was set up as both a research and technology development initiative and an international policy initiative. It addresses the questions of how to use sensitive technologies responsibly in a way that protects global security, and also how to manage and recycle wastes more effectively and securely. The USA had a policy in place since 1977 which ruled out reprocessing used fuel, on non-proliferation grounds. Under GNEP, reprocessing is to be a means of avoiding proliferation, as well as addressing problems concerning high-level wastes. Accordingly, the US Department of Energy set out to develop advanced fuel cycle technologies on a commercial scale. As more countries consider nuclear power, it is important that they develop the infrastructure capabilities necessary for such an undertaking. As with GNEP, IFNEC partners are working with the IAEA to provide guidance for assessing countries' infrastructure needs and for helping to meet those needs. For countries that have no existing nuclear power infrastructure, IFNEC partners can share knowledge and experience to enable developing countries to make informed policy decisions on whether, when, and how to pursue nuclear power without any need to establish sensitive fuel cycle facilities themselves. With the USA taking a *lower profile* in GNEP from 2009, the partners are focused on collaboration to make nuclear energy more widely accessible in accordance with safety, security and non-proliferation objectives, as an effective measure to counter global warming, and to improve global energy security. A change of name to International Framework for Nuclear Energy Cooperation was adopted in June 2010, along with a new draft vision statement, which read: "The Framework provides a forum for cooperation among participating states to exploremutually beneficial approaches to ensure the use of nuclear energy for peaceful purposes proceeds in a manner that is efficient, safe, secure, and supports non-proliferation and safeguards." By some accounts, this envisages "cradle to grave" fuel management as central, along with assurance of fuel supply. IFNEC agenda Broadly, IFNEC's mission is the global expansion of nuclear power in a safe and secure manner. A major rationale is reducing the threat of proliferation of nuclear materials and the spread of sensitive nuclear technology for non-peaceful purposes. With greater use of nuclear energy worldwide the possibility of the spread of nuclear material and technology for the development of weapons of mass destruction must be countered to avoid increasing the present threat to global security. A second issue addressed by IFNEC is the efficiency of the current nuclear fuel cycle. The USA, the largest producer of nuclear power, has employed a 'once through' fuel cycle. This practice only uses a part of the potential energy in the fuel, while effectively wasting substantial amounts of useable energy that could be tapped through recycling. The remaining fissionable material can be used to create additional power, rather than treating it as waste requiring long-term storage. Others, notably Europe and Japan, recover the residual uranium and plutonium from the used fuel to recycle at least the plutonium in light water reactors. However, no-one has yet employed a comprehensive technology that includes full actinidea recycle. In the USA, this question is pressing since significant amounts of used nuclear fuel are stored in different locations around the country awaiting shipment to a planned geological repository which was to be at Yucca Mountain in Nevada. This project is delayed, and in any case will fill very rapidly if it is used simply for used fuel rather than the separated wastes after reprocessing it. IFNEC also aims to address cost issues associated with the development and expansion of nuclear power in developing countries. Nuclear programs require a high degree of technical and industrial expertise. This is a *serious obstacle* for emerging countries attempting to develop nuclear power, although efforts are underway to increase the number of indigenously-trained nuclear experts through a variety of education and training initiatives. Internationally, the countries identified by the US Department of Energy (DOE) as likely participants at both enrichment and recycling ends are the USA, UK, France, Russia and Japan. The USA and Japan agreed to develop a nuclear energy cooperation plan centered on GNEP and the construction of new nuclear power plants. (Japan also intended to participate in the DOE's FutureGen clean coal project, which was abandoned but may possibly be revived.) Several bilateral agreements centered on GNEP/IFNEC have been developed. IFNEC parties and rationale At the first ministerial meeting in May 2007, the USA, China, France, Japan and Russia became formally the founding members of GNEP. Four of the five are nuclear weapons states and have developed full fuel cycle facilities arising from that; the non-nuclear weapons state, Japan, has developed similar facilities to support its extensive nuclear power program. To date, 31 nationsb are participants in IFNEC. Most of these signed the GNEP Statement of Principles1, which established broad guidelines for participation and incorporates seven objectives that touch on each element of GNEP. Under GNEP, so-called 'fuel cycle nations' would provide assured supplies of enriched nuclear fuel to client nations, which would generate electricity before returning the used fuel. The used fuel would then undergo advanced reprocessing so that the uranium and plutonium it contained, plus long-lived minor actinides, could be recycled in advanced nuclear power reactors. Waste volumes and radiological longevity would be greatly reduced by this process, and the wastes would end up either in the fuel cycle or user countries. Nuclear materials would never be outside the strictest controls, overseen by the IAEA.Two sensitive processes in particular would not need to be employed in most countries: enrichment and reprocessing. The limitation on these, by commercial dissuasion rather than outright prohibition, is at the heart of GNEP strategy. A corollary of this dissuasion is that GNEP/IFNEC member nations would be assured of reliable and economic fuel supply under some IAEA arrangement yet to be specified. GNEP/IFNEC work plan The GNEP members set up two principal working groups: The reliable nuclear fuel services working group (RNFS WG) is addressing nuclear fuel leasing and other considerations around comprehensive nuclear fuel supply goals, and includes evaluation of back-end fuel cycle options. The nuclear infrastructure development working group (ID WG) is addressing human resource development, radioactive waste management, small modular reactors, financing options, engagement with specialist organizations and identifying infrastructure requirements for an international nuclear fuel services framework enabling nuclear power deployment in many countries. An early priority was seen to be the development of new reprocessing technologies to enable recycling of most of the used fuel. One of the concerns when reprocessing used nuclear fuel is ensuring that separated fissile material is not used to create a weapon. One chemical reprocessing technology – PUREX – has been employed for over half a century, having been developed in wartime for military use(see page on Processing of Used Nuclear Fuel). This has resulted in the accumulation of 240 tonnes of separated reactor-grade plutonium around the world (though some has been used in the fabrication of mixed oxide fuel). While this is not suitable for weapons use, it is still regarded as a proliferation concern. New reprocessing technologies are designed to combine the plutonium with some uranium and possibly with minor actinides (neptunium, americium and curium), rendering it impractical to use the plutonium in the manufacture of weapons. GNEP/IFNEC creates a framework where states that currently employ reprocessing technologies can collaborate to design and deploy advanced separations and fuel fabrication techniques that do not result in the accumulation of separated pure plutonium. Several developments of PUREX which fit the GNEP/IFNEC concept are being trialled: NUEX separates uranium and then all transuranics (including plutonium) together, with fission products separately (USA). UREX+ separates uranium and then either all transuranics together or simply neptunium with the plutonium, with fission products separately (USA). COEX separates uranium and plutonium (and possibly neptunium) together as well as a pure uranium stream, leaving other minor actinides with the fission products. A variation of this separates americium and curium from the fission products (France). GANEX separates uranium and plutonium as in COEX, then separates the minor actinides plus some lanthanides from the short-lived fission products (France). The central feature of all these variants is to keep the plutonium either with some uranium or with other transuranics which can be destroyed by burning in a fast neutron reactor – the plutonium being the main fuel constituent. Trials of some fuels arising from UREX+ reprocessing in USA are being undertaken in the French Phenix fast reactor. An associated need is to develop the required fuel fabrication plant. That for plutonium with only some uranium and neptunium is relatively straightforward and similar to today's MOX fuel fabrication plants. A plant for fuel including americium and curium would be more complex (due to americium being volatile and curium a neutron emitter). The second main technological development originally envisaged under GNEP is the advanced recycling reactor – basically a fast reactor capable of burning minor actinides. Thus used fuel from light water reactors would be transported to a recycling centre, where it would be reprocessed and the transuranic product (including plutonium) transferred to a fast reactor on site. This reactor, which would destroy the actinides, would have a power capacity of perhaps 1000 MWe. The areas of development for fast reactor technology centre on the need for fast reactors to be cost competitive with current light water reactors. Countries such as France, Russia and Japan have experience in the design and operation of fast reactors and the USA is working with them to accelerate the development of advanced fast reactors that are cost competitive, incorporate advanced safeguards features, and are efficient and reliable. *The advent of* such *fast reactors* would mean that reprocessing technology could and should step from the aqueous processes derived from PUREX described above to electrometallurgical processes in a molten salt bath.Separating the actinides then is by electrodeposition on a cathode, without chemical separation of heavy elements as occurs in the Purex and related processes. This cathode product can then be used in a fast reactor, since it is not sensitive to small amounts of impurities. GE Hitachi Nuclear Energy (GEH) is developing this 'Advanced Recycling Center' concept which combines electrometallurgical separation and burning the final product in one or more of its PRISM fast reactors on the same site.2 The separation process would remove uranium, which is recycled to light water reactors; then fission products, which are waste; and finally the actinides including plutonium. With respect to the ultimate disposition of nuclear waste from recycling, three options exist conceptually: User responsibility.

**The plan would cause quick U.S.-Russia IFR commercialization and fissile material oversight.**

Tom Blees, 6-4-2011, is the author of Prescription for the Planet, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, BraveNewClimate,”Disposal of UK plutonium stocks with a climate change focus,” <http://bravenewclimate.com/2011/06/04/uk-pu-cc/>

While the scientists and engineers were perfecting the many revolutionary features of the IFR at the EBR-II site in the Eighties and early Nineties, a consortium of major American firms collaborated with them to design a commercial-scale fast reactor based on that research. General Electric led that group, which included companies like Bechtel, Raytheon and Westinghouse, among others. The result was a modular reactor design intended for mass production in factories, called the PRISM (Power Reactor Innovative Small Module). A later iteration, the S-PRISM, would be slightly larger at about 300 MWe, while still retaining the features of the somewhat smaller PRISM. For purposes of simplicity I will refer hereinafter to the S-PRISM as simply the PRISM. After the closure of the IFR project, GE continued to refine the PRISM design and is in a position to pursue the building of these advanced reactors as soon as the necessary political will can be found. Unfortunately for those who would like to see America’s fast reactor be built in America, nuclear politics in the USA is nearly as dysfunctional as it is in Germany. The incident at Fukushima has only made matters worse. The suggestion in this report that fast reactors are thirty years away is far from accurate. GE-Hitachi plans to submit the PRISM design to the Nuclear Regulatory Commission (NRC) next year for certification. But that time-consuming process, while certainly not taking thirty years, may well be in process even as the first PRISM is built in another country. This is far from unprecedented. In the early Nineties, GE submitted its Advanced Boiling Water Reactor (ABWR) design to the NRC for certification. GE then approached Toshiba and Hitachi and arranged for each of those companies to build one in Japan. Those two companies proceeded to get the design approved by their own NRC counterpart, built the first two ABWRs in just 36 and 39 months, fueled and tested them, then operated them for a year before the NRC in the US finally certified the design. International partners On March 24th an event was held at the Russian embassy in Washington, D.C., attended by a small number of members of the nuclear industry and its regulatory agencies, both foreign and domestic, as well as representatives of NGOs concerned with nuclear issues. Sergei Kirienko, the director-general of Rosatom, Russia’s nuclear power agency, was joined by Dan Poneman, the deputy secretary of the U.S. Dept. of Energy. This was shortly after the Fukushima earthquake and tsunami, at a time when the nuclear power reactors at Fukushima Daiichi were still in a very uncertain condition. Mr. Kirienko and Mr. Poneman first spoke about the ways in which the USA and Russia have been cooperating in tightening control over fissile material around the world. Then Mr. Kirienko addressed what was on the minds of all of us: the situation in Japan and what that portends for nuclear power deployment in the USA and around the world. He rightly pointed out that the Chernobyl accident almost exactly 25 years ago, and the Fukushima problems now, clearly demonstrate that nuclear power transcends national boundaries, for any major accident can quickly become an international problem. For this reason Kirienko proposed that an international body be organized that would oversee nuclear power development around the world, not just in terms of monitoring fissile material for purposes of preventing proliferation (much as the IAEA does today), but to bring international expertise and oversight to bear on the construction and operation of nuclear power plants as these systems begin to be built in ever more countries. Kirienko also pointed out that the power plants at risk in Japan were old reactor designs. He said that this accident demonstrates the need to move nuclear power into the modern age. For this reason, he said, Russia is committed to the rapid development and deployment of metal-fueled fast neutron reactor systems. His ensuing remarks specifically reiterated not only a fast reactor program (where he might have been expected to speak about Gen III or III+ light water reactor systems), but the development of metal fuel for these systems. This is precisely the technology that was developed at Argonne National Laboratory with the Integral Fast Reactor (IFR) program, but then prematurely terminated in 1994 in its final stages. For the past two years I’ve been working with Dr. Evgeny Velikhov (director of Russia’s Kurchatov Institute and probably Russia’s leading scientist/political advisor) to develop a partnership between the USA and Russia to build metal-fueled fast reactors; or to be more precise, to facilitate a cooperative effort between GE-Hitachi and Rosatom to build the first PRISM reactor in Russia as soon as possible. During those two years there have been several meetings in Washington to put the pieces in place for such a bilateral agreement. The Obama administration, at several levels, seems to be willingly participating in and even encouraging this effort. Dr Evgeny Velikhov, SCGI member Dr. Velikhov and I (and other members of the Science Council for Global Initiatives) have also been discussing the idea of including nuclear engineers from other countries in this project, countries which have expressed a desire to obtain or develop this technology, some of which have active R&D programs underway (India, South Korea, China). Japan was very interested in this technology during the years of the IFR project, and although their fast reactor development is currently focused on their oxide-fueled Monju reactor there is little doubt that *they would jump at the chance to participate in this project*. Dr. Velikhov has long been an advocate of international cooperation in advanced nuclear power research, having launched the ITER project about a quarter-century ago. He fully comprehends the impact that international standardization and deployment of IFR-type reactors would have on the well-being of humanity at large. Yet if Russia and the USA were to embark upon a project to build the first PRISM reactor(s) in Russia, one might presume that the Russians would prefer to make it a bilateral project that would put them at the cutting edge of this technology and open up golden opportunities to develop an industry to export it. It was thus somewhat surprising when Mr. Kirienko, in response to a question from one of the attendees, said that Russia would be open to inviting Japan, South Korea and India to participate in the project. One might well question whether his failure to include China in this statement was merely an oversight or whether that nation’s notorious reputation for economic competition often based on reverse-engineering new technologies was the reason. I took the opportunity, in the short Q&A session, to point out to Mr. Poneman that the Science Council for Global Initiatives includes not just Dr. Velikhov but most of the main players in the development of the IFR, and that our organization would be happy to act as a coordinating body to assure that our Russian friends will have the benefit of our most experienced scientists in the pursuit of this project. Mr. Poneman expressed his gratitude for this information and assured the audience that the USA would certainly want to make sure that our Russian colleagues had access to our best and brightest specialists in this field. Enter the United Kingdom Sergei Kirienko was very clear in his emphasis on rapid construction and deployment of fast reactors. If the United States moves ahead with supporting a GE-Rosatom partnership, the first PRISM reactor could well be built within the space of the next five years. The estimated cost of the project will be in the range of three to four billion dollars (USD), since it will be the first of its kind. The more international partners share in this project, the less will be the cost for each, of course. And future copies of the PRISM have been estimated by GE-Hitachi to cost in the range of $1,700/kW. Work is under way on gram samples of civil plutonium According to this consultation document, the UK is looking at spending £5-6 billion or more in dealing with its plutonium. Yet if the plutonium were to simply be secured as it currently is for a short time longer and the UK involved itself in the USA/Russia project, the cost would be a small fraction of that amount, and when the project is completed the UK will have the technology in hand to begin mass-production of PRISM reactors. The plutonium stocks of the UK could be converted into metal fuel using the pyroprocessing techniques developed by the IFR project (and which, as noted above, are ready to be utilized by South Korea). The Science Council for Global Initiatives is currently working on arranging for the building of the first commercial-scale facility in the USA for conversion of spent LWR fuel into metal fuel for fast reactors. By the time the first PRISM is finished in Russia, that project will also likely be complete. What this would mean for the UK would be that its stores of plutonium would become the fast reactor fuel envisioned by earlier policymakers. After a couple years in the reactor the spent fuel would be ready for recycling via pyroprocessing, then either stored for future use or used to start up even more PRISM reactors. In this way not only would the plutonium be used up but the UK would painlessly transition to fast reactors, obviating any need for future mining or enrichment of uranium for centuries, since once the plutonium is used up the current inventories of depleted uranium could be used as fuel. Conclusion Far from being decades away, a fully-developed fast reactor design is ready to be built. While I’m quite certain that GE-Hitachi would be happy to sell a PRISM to the UK, the cost and risk could be reduced to an absolute minimum by the happy expedient of joining in the international project with the USA, Russia, and whichever other nations are ultimately involved. The Science Council for Global Initiatives will continue to play a role in this project and would be happy to engage the UK government in initial discussions to further explore this possibility. There is little doubt that Russia will move forward with fast reactor construction and deployment in the very near future, even if the PRISM project runs into an unforeseen roadblock. It would be in the best interests of all of us to cooperate in this effort. Not only will the deployment of a standardized modular fast reactor design facilitate the disposition of plutonium that is currently the driving force for the UK, but it would enable every nation on the planet to avail itself of virtually unlimited clean energy. Such an international cooperative effort would also provide the rationale for the sort of multinational nuclear power oversight agency envisioned by Mr. Kirienko and others who are concerned not only about providing abundant energy but also in maintaining control over fissile materials.

**The plan jumpstarts cooperation on nuclear security and spillover to broader relations**

**Khlopkov ’11**(A Peaceful Atom 27 march 2011 Anton Khlopkov Nuclear Rapprochement Between Moscow and Washington Anton Khlopkov is Director of the Center for Energy and Security Studies in Moscow; Editor-in-Chief of Nuclear Club journal.

Another promising area for cooperation is developing innovative nuclear power reactor technologies, including fast reactors, high-temperature gas-cooled reactors and low-power reactors. The Nuclear Energy and Nuclear Security working group set up as part of the U.S.-Russian presidential commission in July 2009 has the potential to foster closer cooperation between the two countries. But for that to happen**, Moscow and Washington would have to find the right balance** between the two key areas reflected in the working group’s name. Up to now nuclear security and nonproliferation have dominated the U.S.-Russian nuclear agenda, sidelining cooperation on civilian nuclear energy. For example, the 11 practical steps agreed on at the working group’s third meeting on December 6-7 are all related to various non-proliferation projects. The working group has **a nuclear energy subgroup, which should become an important facilitator of closer cooperation**between the two countries in civilian nuclear technology. As a first step, the subgroup could agree to a list of priority civilian nuclear energy projects for the short and mid-term. The 123 Agreement has another promising consequence for the Russian nuclear industry – it removes one of the barriers to nuclear energy cooperation with Tokyo. Japan’s Toshiba and Hitachi corporations maintain a close partnership with U.S. companies Westinghouse and General Electric. For that reason they have been very cautious about pursuing cooperation with Russia, so as not to jeopardize their business in the United States. Japanese officials have said unambiguously that the nuclear energy cooperation agreement signed by Moscow and Tokyo on May 12, 2009 will not be ratified by the Diet, the Japanese parliament, until the U.S.-Russian 123 Agreement has entered into force. The list of potential areas for nuclear energy cooperation between Russia and Japan is quite extensive. It includes the outsourcing of components for Russian-designed nuclear power plants to Japanese subcontractors and a proposed uranium enrichment joint venture. Obviously, in light of the recent disaster at the Fukushima nuclear power plant, Russian-U.S. **nuclear cooperation must focus on** efforts to enhance the**safety** of the nuclear power industry, including working out new requirements and standards for nuclear power plant construction sites. The coordinated efforts of key players in the nuclear field, including Russia and the United States, would help the nuclear power industry overcome the current crisis with fewer losses and costs. **Another important outcome that will**hopefully**result from broader contacts between the U.S. and Russian nuclear industries is a better reputation for Russia on nuclear security, export controls and nonproliferation.** Russia’s negative image in these areas dates back to the early 1990s; it is based on a combination of real problems that existed at the time and Hollywood-like stories in the media. Until recently, that image has often stood in the way of practical contacts and politicized nuclear energy cooperation between Russia and the United States, especially during Congressional debates.

**Tensions now- only advanced nuclear power cooperation can resolve tensions and create resiliency in relations**

**Weitz ’12** (Richard Weitz is a senior fellow at the Hudson Institute and a World Politics Review senior editor. His weekly WPR column, Global Insights, appears every Tuesday. World Politics Review Senior Editor, “Global Insights: U.S.-Russia Arms Control Prospects Under Putin”, World Politics Review, 3-6-2012, <http://www.worldpoliticsreview.com/articles/11681/global-insights-u-s-russia-arms-control-prospects-under-putin>)

This weekend’s election in Russia has unsurprisingly returned Vladimir Putin to the country’s presidency. In contrast to the preordained outcome of the Russian voting, the winner of this November’s U.S. presidential election is not yet known. But **whoever occupies the White House** in 2013 will need to consider the bilateral arms control relationship with Russia in coming years. And although the implementation of the New START agreement is going well, **there are sharp differences** in Washington and Moscow over where to go next. Moscow’s main concerns focus on U.S. missile defense and U.S. superiority in conventional forces. Both conditions work against Russia’s willingness to cut its offensive nuclear forces even further, which is the U.S. priority, especially with regard to the issue of Russian tactical nuclear weapons. In his recent Moscow News article on Russian foreign policy, Putin railed against what he called the U.S. quest for “absolute security.” In his words, the problem is that “absolute invulnerability for one country would in theory require absolute vulnerability for all others.” Instead, Putin again insisted on the right of all states to equal security, as well as Russia’s right to maintain the capacity to attack the United States with nuclear weapons if necessary. Putin argued that faced with U.S. plans for deploying a European-based missile defense system, Russia had two options: a symmetrical response of creating its own system or an asymmetrical strategy of strengthening Russia’s offensive strategic weapons to ensure that they are capable of overcoming any NATO system and thereby preserving mutual deterrence. The first choice being too costly and technically challenging, he said Russia would follow the second course. In Moscow’s view, the problem of equal security also applies to the imbalance in conventional forces in Europe. The United States recently followed Russia’s lead in ending implementation of the original Conventional Forces in Europe (CFE) Treaty. Russian officials have also given up on the idea of ratifying the Adapted CFE Treaty, since NATO insists that Russia withdraw its military forces from Georgia as part of its Istanbul Commitments. Given these complications, Russians are uninterested in various U.S. proposals for a “grand bargain” that would seek to address the CFE and tactical nuclear weapons in Europe simultaneously. Russian policymakers have also expressed a new complaint in the form of their open doubt over the United States’ ability to ratify the kinds of binding legal agreements that Moscow demands. They note the difficulties that the Obama administration had in securing U.S. Senate ratification of New START, which required a White House commitment to modernize the U.S. nuclear arsenal, even if that is now falling victim to budgetary pressures. Russians insist that they want another legally binding agreement to constrain U.S. missile defenses. TheObama administration has been offering a politically binding agreement on missile defense, but **has refused to accept legally binding constraints on how the missile defense program might develop.** Although U.S. officials stress that they will not try to negate Russia’s nuclear deterrent, whose massive size and great sophistication would make such an effort impossible in any case, Congress would never accept a legally binding agreement that commits the United States to deliberately constrain its ability to protect Americans and their allies from foreign missile attacks. At best, the administration is willing to offer nonbinding political guarantees that they will not seek to negate Russia’s strategic nuclear deterrent. Russian officials refuse to accept mere political declarations on such important issues. They claim the United States earlier violated such agreements when it enlarged NATO after the Cold War and moved NATO forces into former Soviet-bloc states. In contrast, they note that even when the United States withdrew from the Anti-Ballistic Missile Treaty in 2001, the predictable and legal manner in which the withdrawal was carried out reassured Putin and others in Moscow who opposed the U.S. decision. Russians also point out that political agreements lend themselves to different interpretations depending on who is viewing the issue. Although they do not seem to worry about another Obama presidency, they claim to fear that some future U.S. administration will try to expand U.S. missile defenses to be able to intercept Russian strategic missiles. **These differences highlight the uncertain climate surrounding**the**nuclear arms control**agenda, which is compounded by Russian concerns about U.S. space, cyber and other weapons. **But progress could be possible in several other areas.**First, Russians are eager to help counter nuclear terrorism through the mechanisms of the Nuclear Security Summit forums and the Global Initiative to Combat Nuclear Terrorism. Both countries want to revive the civilian use of nuclear power under safe and secure conditions, making sure that those countries now considering starting nuclear energy programs receive training and guidance on how to avoid accidents and protect the nuclear material at their facilities. Second, Russian-U.S. collaboration on regional proliferation challenges is important, since both countries are veto-wielding members of the U.N. Security Council. Russian officials are unlikely to accept any more U.N. sanctions on Iran given their different assessment of Iranian motives, unless incontrovertible evidence that Tehran is seeking a nuclear weapon emerges. But cooperation is possible regarding North Korea, where Russia and the United States share the goal of stabilizing the Korean Peninsula. Third, the Carnegie Endowment and other institutions have been developing a number of potential informal confidence and transparency-building measures that the two sides could pursue. These would help to lead toward a new strategic arms control treaty in a few years if the bilateral relationship improves, but could serve a valuable stabilizing function even without one. These measures include renewed efforts to expand the application of restrictions in the Intermediate Nuclear Forces Treaty and other bilateral arms control agreements to other countries, as well as measures to increase transparency regarding the capacity of each sides’ nuclear weapons-production complexes to construct new nuclear forces in any attempt to rapidly break out of a strategic arms control agreement. Finally, **Russians are eager to work on civilian nuclear energy cooperationwith the United States.** The two sides’ recently ratified 123 **agreement allows Russian and U.S. firms to cooperate to produce new** types of civilian power **reactors that would be less prone to proliferation than existing models**. **Such collaboration could prove very useful in helping develop new commercial stakeholders in both countries that have an interest in maintaining good Russian-U.S. relations.** **The economic relationship between Russia and the United States remains relatively undeveloped,**since Americans buy Russia’s main exports -- oil, gas and weapons -- elsewhere, while various impediments hobble mutual investments. **At present, the constituencies favoring strong bilateral ties in both countries are small**, consisting mainly of arms control advocates and foreign policy experts. As **a result, the Russian-U.S. agenda is stilldominated by Cold War-type issues, including nuclear arms control, which position the two parties in an adversarial relationship.** **Only by moving away from this orientation can both sides begin toovercome the mutual confidence gap that exacerbates many of their other differences**. **Though Putin’s return to the presidency could augur a hard line** on a number of issues **where** the U.S. and Russian**positions diverge**, **his pragmatism and opportunism could lead to progress in the areas where the two sides’ interests overlap.**

**Russian relations are critical to prevent major power conflict in every global hotspot**

**Nixon Center ‘3** (“Advancing American Interests and the U.S.-Russian Relationship: INTERIM REPORT,” SEPTEMBER 2K3 [HTTP://WWW.NIXONCENTER.ORG/PUBLICATIONS/MONOGRAPHS/FR.HTM](http://www.nixoncenter.org/PUBLICATIONS/MONOGRAPHS/FR.HTM))

The proper starting point in thinking about American national interests and Russia—or any other country—is the candid question: why does Russia matter?  How can Russia affect vital American interests and how much should the United States care about Russia?  Where does it rank in the hierarchy of American national interests?  As the Report of the *Commission on American National Interests* (2000) concluded, **Russia** **ranks among the few countries whose actions powerfully affect American vital interests**.  Why? § First, **Russia is a very large country linking several strategically important regions**.  **By virtue of its size and location**, **Russia is a key player** **in Europe** as well as **the Middle East** **and** **Central, South and East Asia**.  Accordingly, Moscow can substantially contribute to, or detract from, **U.S. efforts to deal with** such **urgent challenges as North Korea and Iran,** as well as important longer term problems like **Iraq and Afghanistan**.  In addition, Russia shares the world’s longest land border with **China**, **an emerging great power that can have a major impact** on both U.S. and Russian interests.  The bottom line is that notwithstanding its significant loss of power after the end of the Cold War, Moscow’s geopolitical weight still exceeds that of London or Paris.  § Second, as a result of its Soviet legacy, Russia has relationships with and information about **countries that remain comparativelyinaccessible to the American government**, **in the Middle East, Central Asia and elsewhere**.  Russian intelligence and/or leverage in these areas **could significantly aid the United States** in its efforts to deal with current, emerging and still unforeseen strategic challenges, including in the war on terrorism.  § Third, today and for the foreseeable future Russia’s nuclear arsenal will be capable of inflicting vast damage on the United States. Fortunately, the likelihood of such scenarios has declined dramatically since the Cold War.  But today and as far as any eye can see the U.S. will have an enduring vital interest in these weapons not being used against America or our allies.  § Fourth, reliable Russian stewardship and control of the largest arsenal of nuclear warheads and stockpile of nuclear materials from which nuclear weapons could be made is essential in combating the threat of “loose nukes.”  The United States has a vital interest in effective Russian programs to prevent weapons being stolen by criminals, sold to terrorists and used to kill Americans.  § Fifth, Russian stockpiles, technologies and knowledge for creating biological and chemical weapons make cooperation with Moscow very important to U.S. efforts to prevent proliferation of these weapons.  Working with Russia may similarly help to prevent states hostile to the United States from obtaining sophisticated conventional weapons systems, such as missiles and submarines.  § Sixth, as the world’s largest producer and exporter of hydrocarbons (oil and gas), Russia offers America an opportunity to diversify and increase supplies of non-OPEC, non-Mid-Eastern energy.  § Seventh, as a veto-wielding permanent member of the United Nations Security Council, Russia can substantially ease, or complicate, American attempts to work through the UN and other international institutions to advance other vital and extremely important U.S. interests.  In a world in which many are already concerned about the use of U.S. power, this can have a real impact on America’s success at providing global leadership.  More broadly, **a close U.S.-Russian relationship can limit other states’ behavior by effectively eliminating Moscow as a potential source of political support.**

**Depicting Russia as a foreign Other located in a distant Asia apart from the West and incapable of technological transformation encourages violence and constructs an enemy relationship**

**ENGERMAN 2003** (David, Engerman is Assistant Professor of History at Brandeis University, Modernization from the Other Shore: American Intellectuals and the Romance of Russian Development, p. 2-4)

These questions redounded around the world in the twentieth century. Under the spell of modernization, American intellectuals endorsed radical forms of social change everywhere except in the United States. They placed at the pinnacle of human achievement a society much like they imagined their own to be: industrial, urban, cosmopolitan, rational, and democratic. Backward nations, they argued, could progress toward modernity only by implementing rapid and violent changes.Modern America, however, would be exempt from such turmoil. With America's expanding global role and intellectuals' increasingly close connections to the centers of power, these ideas shaped nations all over the world. New ideas of social change and national character also shaped notions of American national identity, which itself underwent significant changes after 1870—from scientific racism and assimilationist theory before World War II to celebrations of common humanity in the 1950s and the valorization of cultural differ-ences since the 1980s. The way Americans understood the process of social change shaped the way they envisioned their own nation. Finally, the tensions between accepting cultural differences and promoting modernization underpinned American-Soviet conflict during the Cold War. At the same time that scholars analyzed the conflict as one between two industrial powers with opposing ideologies, American diplomats construed the Cold War enemy as an inherently andirredeemably different nation. These conceptions, supported by America's global reach, made—and continue to make—the American century.

American writings on Russia and the Soviet Union were shaped by three forces, which constitute the three main themes of this book: a longstanding belief that every nation had its own unique character; a growing enthusiasm for modernization; and the appearance of new professional institutions and norms for interpreting other nations. First, American experts used national-character stereotypes to explain Russian and Soviet events. Building on centuries-old notions of Russian peculiarity, western experts enumerated traits that supposedly limited the Russians' ability to function in a modern world. Americans repeated the claims of European commentators who argued that national character emerged from geography and topography: long winters made Russians passive, and endless plains made them melancholy. Russians, in these writings, exhibited instinctual behavior, extreme passivity, and a lethargy shaken only by violence.4 Americans argued that these characteristics—accentuating the negative—affected Russia's economic prospects. Reliance on these notions of national character crossed political boundaries; Russia's avowed enemies and ardent defenders in the United States agreed on what made Russians different.

Herzen himself illustrated the double-edged nature of such characterizations. Living in France and Italy in the 1850s, he gained new perspective on Russian character. He frequently mentioned the "Slavic genius" that set his compatriots apart from Europeans, focusing especially on Russians' soulful and communal natures. Yet he also took for granted that Russians^—especially the peasants who constituted the vast majority of the population—were "improvident and indolent," better at "passive obedience" than political or economic activity.5 Difference did not necessarily mean superiority.

Americans' notions of Russian character often contained within them the idea that Russians were Asian—"Asiatic" in the language of the day. The claim, stated as often in racial as in geographic terms, further legiti-mated violence in Russia. According to an oft-repeated refrain, life meant less to Asians, and therefore to Russians. Personal traits also held political implications. Asians, the argument went, could be ruled only through "Oriental despotism." Writers from Baron Charles de Montesquieu to Karl Marx depicted Asia as an unchanging—even unchangeable—morass of poverty, insularity, and despotism.6 Whether understood as Asian or Slavic, Russians consistently faced claims that they were unready to join the modern world. Particularist views of Russia, which emphasized the nations unique traditions and character traits, dominated American writings until the 1920s.

**Otherization of Russia results in real hostility**

**LIEVEN 2001**(Anatol, Senior Associate for Foreign and Security policy at Carnegie Endowment for International Peace, “Against Russophobia,” World Policy Journal, Winter, <http://www.worldpolicy.newschool.edu/journal/lieven.html>)

Russophobia today is therefore rooted not in ideological differences but in national hatred of a kind that is sadly too common. In these architectures of hatred, selected or invented historical "facts" about the "enemy" nation, its culture, and its racial nature are taken out of context and slotted into prearranged intellectual structures to arraign the unchanging wickedness of the other side. Meanwhile, any counterarguments, or memories of the crimes of one's own are suppressed. This is no more legitimate when directed by Russophobes against Russia than when it is directed by Serb, Greek, or Armenian chauvinists against Turkey, Arabs against Jews, or Jews against Arabs. The most worrying aspect of Western Russophobia is that it demonstrates the capacity of too many Western journalists and intellectuals to betray their own professed standards and behave like Victorian jingoists or Balkan nationalists when their own national loyalties and hatreds are involved. And these tendencies in turn serve wider needs. Overall, we are living in an exceptionally benign period in human history so far as our own interests are concerned. Yet one cannot live in Washington without becoming aware of the desperate need of certain members of Western elites for new enemies, or resuscitated old ones. This is certainly not the wish of most Americans-nor of any other Westerners-and it is dangerous. For of one thing we can be sure: a country that is**seen to need enemies** will sooner or later **find them everywhere**.

**3**

**Peak uranium by the end of the decade – fuel recycling key to solve**

**Crawford 11**[“Peak Uranium By 2015?”, 6/22/11, Black Swan Insights, Nathaniel Crawford—B.A. from Occidental College, 9 years of experience in financial markets, as stock trader, bonds trader, investor, and analyst]

A new research report says yes. The report goes on to say that short of a complete nuclear phase-out, *the world will run out of uranium by the end of the decade*. Here are the major conclusions:¶ • A production decline from essentially all minesoperating on particular deposits is *unavoidable*during the present decade.¶ • This decline can only be partially compensated by the planned new mines.¶ • Assuming that all new uranium mines can be opened as planned, annual mining will be increased from the 2010 level of 54 ktons to about 58 ± 4 ktons in 2015.¶ • After 2015 uranium mining will decline by about 0.5 ktons/year up to 2025 and much faster thereafter. The resulting maximal annual production is predicted as 56 ± 5 ktons (2020), 54 ± 5 ktons (2025) and 41 ± 5 ktons (2030).¶ Assuming that the demand side will be increased by 1% annually, we predict both shortages of uranium and (inflation-adjusted) price hikes within the next five years.¶ ........¶ Therefore, assuming that a global slow phase-out scenario will not be chosen on a voluntary basis, we predict that the end of the cheap uranium supply will result in a chaotic phase-out scenario with price explosions, supply shortages and blackouts in many countries.¶ To read the full report: click here¶ The report contends that the only way for supply to keep up with demand would be if the US and Russia recycle their nuclear weapons into low enriched uranium fuel. The Russians have been doing this since 1993 under the Megatons to Megawatts program, but the program is expected to end in 2013. The Russians have indicated that they do not expect to renew the program.

**That will trigger a war over uranium access—escalates to nuclear use**

**Konstantiov 12 –**professor of math at Moscow State and member of numerous scientific/geological councils

(Mihail Konstantiov, Professor of Mathematics with the University of Architecture, Civil Engineering and Geodesy (UACEG), Bulgaria, Vice-Chancellor of UACEG (1999-2003), Member of scientific councils and commissions, Member of the Board of IICREST. He has authored 30 books and over 500 scientific papers. He has participated in international scientific projects of EU and NATO and realized research and lecturing visits in British, German and French universities. Prof. Konstantinov has been Member and Vice Chair of the Central Election Commission of Bulgaria and Voting coordinator of OSCE (1997-) as well as the Bulgarian representative at the Council of Europe on electronic voting. In addition to his scientific publications, he has authored more than 300 articles in Bulgarian editions devoted to social and political issues with emphasis on election practice and legislation., “Uranium time bomb ticking”, Europost, 2-11-2012, <http://www.europost.bg/article?id=3763>)

In 1945, the US had three nucle­ar bombs - two plu­to­ni­um-based devi­ces and a ura­ni­um-based one. The first one was det­o­nat­ed on a test site in New Mex­i­co, and the sec­ond and third ones over Jap­a­nese ter­ri­to­ry. On 6 August 1945, the then-only ura­ni­um-based bomb was thrown over the Jap­a­nese city of Hiro­shi­ma. What hap­pened is well known and I will not re-tell it. More­over, this sto­ry deals with nucle­ar weap­ons but they are not the main char­ac­ters. Almost 20 years ago, an agree­ment was inked under which the US under­took to help dis­man­tle Rus­sian nucle­ar war­heads and con­vert the ura­ni­um from them into fuel for nucle­ar reac­tors. The rea­son is sim­ple - the pro­ce­dure is expen­sive, Rus­sia was weak and poor at the time, and in addi­tion, Amer­i­can tech­nol­o­gy back then was sig­nif­i­cant­ly ahead of the Rus­sian one. The amounts of con­vert­ed ura­ni­um are mas­sive - more than 500 ton­nes. Thus Rus­sian ura­ni­um turns into fuel for US nucle­ar pow­er plants. At present, this fuel is used to pro­duce 10% of the elec­tri­cal pow­er in the US. This is more than the ener­gy pro­duced from renew­a­ble sour­ces, such as sun, wind and water, there. This idyll, how­e­ver, is com­ing to its end. First, the US-Rus­sia agree­ment for Rus­sian war­heads con­ver­sion expires next year and Rus­sia is high­ly unlike­ly to extend it. More­over, Rus­sians now have good tech­nol­o­gy for that pur­pose and will prob­a­bly want to leave their ura­ni­um for them­selves. And sec­ond, if the agree­ment is extend­ed, the amounts of war­heads sub­ject to dis­man­tling will soon be exhaust­ed any­way as the agreed lim­its are reached. Glob­al mar­kets have already start­ed sus­pect­ing what is going to hap­pen with the expir­ing US-Rus­sia agree­ment for war­head ura­ni­um. And not only with it. Indeed, ura­ni­um oxide pri­ces have *gone wild* sur­ging to almost $70/lb (1lb is 454 gr.) in Jan­u­ary this year from $40/lb in Sep­tem­ber 2011. Such a 70% ral­ly in ura­ni­um price over just 3-4- months is not sus­tain­a­ble and even a cer­tain edg­ing down can be expect­ed. Still, the **trend** is clear - *ura­ni­um dearth* is loom­ing, as well as dearth of oth­er stra­te­gic nat­u­ral resour­ces. We have repeat­ed­ly stat­ed this but let us under­score it again. The glob­al cri­sis is **most of all** a resource cri­sis. It is finan­cial inso­far as it has became clear that the sys­tem allow­ing some peo­ple to print mon­ey while oth­ers work and bring them oil and oth­er goods will not last for good. The antic­i­pat­ed ura­ni­um short­age in the com­ing dec­ade is tru­ly strik­ing and is esti­mat­ed at 500m lb! One of the rea­sons is the fast devel­op­ing econ­o­mies of Chi­na and India, along with oth­er coun­tries like Bra­zil and Tur­key. It is where the bulk of the 147 reac­tors expect­ed to become oper­a­tion­al in these 10 years will be locat­ed. **A major consum­er** of ura­ni­um, the US cur­rent­ly has a demand for 60m lb a year but pro­du­ces only 3m lb. Still, this is the way things are at present. And what will hap­pen aft­er the US Nucle­ar Reg­u­la­to­ry Com­mis­sion reviews and poten­tial­ly approves new nucle­ar reac­tor pro­pos­als? They are 26 or so. And more are in the pipe­line. The sit­u­a­tion in India is even more dra­mat­ic - an increase in the share of nucle­ar ener­gy in elec­tric­i­ty pro­duc­tion is expect­ed from 2.5% at present to 25%. In oth­er words, India will need 10 times as much ura­ni­um as it does now if the far-reach­ing plan is put to prac­tice. Chi­na has more hum­ble aspi­ra­tions and is gear­ing to raise the share of nucle­ar facil­i­ties in elec­tric­i­ty pro­duc­tion only ...three times. And Chi­na, much like the US, does not have suf­fi­cient domes­ticsup­ply. We can con­tin­ue with sta­tis­tics, but things are evi­dent any­way. A war is around the cor­ner. In the best-case sce­nar­io, this will be a price war over ura­ni­um and in par­tic­u­lar ura­ni­um oxide. Pri­ces in the order of $100 or even $200/lb no longer seem far-fetched. Price lev­els of $500-$1000-$2000/lb have even been men­tioned and this will have its swift and dras­tic impli­ca­tions. Still, if a reac­tor costs $4bn, why not pay $1000/lb of ura­ni­um? Or else, the 4-bil­lion invest­ment will go down the drain.Anoth­er explod­ing glob­al mar­ket is the one for rare earth ele­ments with hard-to-pro­nounce Lat­in names such as Neo­dym­i­um, Ceri­um, Lan­tha­num, Gal­li­um, Gado­lin­i­um, Thu­li­um… If we have a look at Men­de­leev's peri­od­ic table, they are squeezed some­where at the bot­tom. But then, all the elec­tron­ics around us, all com­put­ers, fibre optics, all sat­el­lites and in gen­er­al every­thing under­ly­ing our high-tech civ­il­i­za­tion would be utter­ly impos­si­ble but for these exot­ic hard-to-extract ele­ments. The price of each of them has dou­bled and tri­pled in a year alone. And the pri­ces of some of them have soared six­fold in the same peri­od. Com­pared with rare earth ele­ments, gold and plat­i­num are like a tame kit­ten. It nat­u­ral­ly eats and swells but at a rate of only up to 40% a year. And what about the lith­i­um under­ly­ing the idea of elec­tric vehi­cles stag­ing a mass entrance into our dai­ly life and econ­o­my if and when oil is exhaust­ed? But it is in rare ele­ments where the secret of future skir­mish­es over resour­ces lies. Because across the world, they are real­ly hard to extract but Chi­na holds 97% of their glob­al pro­duc­tion! No mis­take, Chi­na pro­du­ces 33 times as much rare met­als as the rest of the world. This may as well be changed some day as cur­rent­ly huge efforts and mon­ey are put into look­ing for rare met­als around the globe. Hypo­thet­i­cal­ly, only a third of the res­erves is in Chi­na with the oth­er two thirds lying some­where else. Too bad it is any­one's guess where, although Cana­da, South Afri­ca and some Afri­can coun­tries are con­sid­ered prom­is­ing in this regard. Still, for the time being this is how things are: Chi­na has almost every­thing and the rest of the world hard­ly any­thing. Does any­one have any doubts why Chi­na has the ambi­tion to become the top dog? Of course, the world is by no means tread­ing water in one oth­er respect: sub­sti­tute tech­nol­o­gies are sought for that would not be so crit­i­cal­ly depend­ent on rare earth ele­ments, yet, more in the long rath­er than short run. By the way, why are we dis­cuss­ing ura­ni­um pri­ces along with all oth­er sorts of pri­ces in US dol­lars? The answer is clear: because the dol­lar is the glob­al reserve cur­ren­cy. The rea­son for this, though, is more com­pli­cat­ed. True, the US is the larg­est econ­o­my for the time being. But it is also among the most indebt­ed coun­tries in the world. And its debt is increas­ing­ly sur­ging. Still, this is not the most impor­tant. The most impor­tant thing is that the US has the most pow­er­ful, most mobile and one of the most effect­ive armies in the world. Lit­tle like­ly is it for some­one to reject the US dol­lar as a reserve cur­ren­cy while the 82nd Air­borne Divi­sion of the US Army, based at Fort Bragg North Car­o­li­na, is the holy ter­ror it is at the moment. And there is much more to it than the 82nd Divi­sion. So the *time bomb*of ura­ni­um and rare earth ele­ments dearth is tick­ing. And lit­tle idea do we have of the time it is set for. Or wheth­er, when it final­ly goes off, some­body might remem­ber the first mas­sive appli­ca­tion of ura­ni­um, which turned thou­sands into ash­es some 67 years ago. **And be temp­ted to use it again**. For 67 years now, we have been show­ing rea­son and sur­viv­ing. Let us hope fierce defi­cien­cy of nat­u­ral resour­ces, food and water that is loom­ing will not take it away from us.

**Perception key—uranium’s role in nuclear weaponization makes militarization of its insecurity inevitable**

**Meierding ’11**

(Emily, “Energy Security and Sub-Saharan Africa”, International Review of Politics and Development (translated from French), 2011, <http://poldev.revues.org/744>)

However, the economic ease of raw material access is only one aspect of international uranium security concerns. Given uranium’s role in nuclear weapons technology, resource control is also regarded as a military security issue. These concerns *can be overblown*; raw uranium poses little military threat. In order to ‘weaponise’ the material, it must be mined, milled to create yellowcake, converted into a gas, then enriched to increase its percentage of U-235, the fissile isotope. Usually, only the first two of these steps occur in less developed, uranium-endowed countries. Since enrichment is extremely costly, few states have developed domestic facilities, especially for enriching up to the 90 per cent U-235 threshold required to fuel research reactors and create nuclear weapons. Most enriched uranium is currently produced by only three companies, namely Russia’s Rosatom, Europe’s Enrichment Technology Company and the United States Enrichment Corporation.7 Thus, there is usually a geographic disconnect between suppliers of raw uranium resources and sites of potential military insecurity. Nonetheless, even *limited insecurity* in uranium-endowed states can have *broad political repercussions*; in 2003 American officials usedreports of the transmission of yellowcake from Niger into Iraq to reinforce their claims that Saddam Hussein posed an imminent threat to international security prior to the US invasion (Hersh, 2003).

**IFR solves uranium mining globally**

**The Energy Collective 11**[“The Integral Fast Reactor (IFR): An Optimized Source for Global Energy Needs”, Charles Archambeau (1), Randolph Ware (2,3), Tom Blees (1), Barry Brook (4), Yoon Chang (5), Jerry Peterson (6), Robert Serafin (3), Joseph Shuster (1), Tom Wigley (3), 1: Science Council for Global Initiatives, 2: Cooperative Institute for Research in Environmental Sciences, 3: National Center for Atmospheric Research, 4: University of Adelaide, 5: Argonne National Laboratory, 6: University of Colorado, You can find a description of many of the co-authors (Archambeau, Blees, Brook, Chang and Shuster) on the Science Council for Global Initiatives website. Others include climatologist Tom Wigley, UCAR radiometrician Randolf Ware, Physics Prof Jerry Peterson and Robert Serafin, past director of the National Center for Atmospheric Research (NCAR) and past president of the AMS. All highly credentialed professionals from a variety of fields relevant to climate change, nuclear engineering and physics, technology development, and business, The Energy Collective, Jan 31, 2011]

Nuclear power, however, is capable of providing all the carbon-free energy that mankind requires, although the prospect of such a massive deployment raises questions of uranium shortages, increased energy and environmentalimpacts from mining and fuel enrichment, and so on. These potential roadblocks can all be dispensed with, however, through the use of fast neutron reactors and fuel recycling.The Integral Fast Reactor (IFR), developed at U.S. national laboratories in the latter years of the last century, can economically and cleanly supply all the energy the world needs without any further mining or enrichment of uranium. Instead of utilizing a mere 0.6% of the potential energy in uranium,IFRs capture all of it. Capable of utilizing troublesome waste products already at hand, IFRs can solve the thorny spent fuel problem while powering the planet with carbon-free energy for nearly a millennium before any more uranium mining would even have to be considered. Designed from the outset for unparalleled safety and proliferation resistance, with all major features proven out at the engineering scale, this technology is unrivaled in its ability to solve the most difficult energy problems facing humanity in the 21st century.

**Uranium mining causes massive amounts of structural violence**

Gerritson, 09 [“Uranium Mining Poisons Native Americans”, Jeff, Culture Change, <http://www.culturechange.org/cms/content/view/336/1/>]

Nuclear power is often billed as clean base-load electrical energy. However, few if any nuclear power proponents mention the unintended consequences or the externalized costs associated with this technology to support the unsustainable U.S. lifestyle. *A crucial part of this story is told by Native Americans. ¶*I have included three shocking, detailed articles outlining these unintended consequences impacting the Native Americans in South Dakota and neighboring states -- in particular the Cheyenne River radiation poisoning from nearby uranium mining impacting the Pine Ridge Indian Reservation.¶ Regarding the nuclear power industry, unfortunately, I have a "horse" in this race -- my daughter and son-in-law, both engineers working on nuclear power plants. As a parent and activist who looks down the road to future generations, I suspect future historians will regard with contempt our *ill-conceived* and childish *foray into nuclear power*. I doubt history will judge us favorably. About some of the conversations my family has, as we are polar opposites -- let's just say the discussions are rather lively! ¶ In the first article, Shelly Bluejay Pierce writes about *uranium mining poisoning* the Cheyenne River on the Pine Ridge Indian Reservation. This 2007 article's issues *have not been addressed* (see the present-day update at bottom of this report). The uranium mining wastes have *not been cleaned up* from the river or surrounding countryside. The second article, written by Charmaine White Face, provides a brief outline of uranium mining -- calling it FACT SHEET: America's Secret Chernobyl. ¶ The last article is an impassioned history, full of painful fact, by the Lakota as detailed in their Bring Back The Way campaign. ¶ While uranium mining tailings and wastes are not high graded into pure uranium, they nonetheless pose a *significant health risk* that will be with usfor many hundreds of thousand years. Is this a legacy you want to leave to our future generations? I would think not! *Contact your* local, state, and federal *representatives* and *demand action*. There must be real clean-up and *a stop to the mining*, *production*, and use of these radioactive materials altogether. We must question our power "needs." - JG ¶ Radiation Warning Signs Placed on Cheyenne River by Shelley Bluejay Pierce, Native American Times Correspondent, July 29, 2007 ¶ Radiation warning signs were posted on Wednesday, July 18, 2007 in the small town of Red Shirt, South Dakota which lies on the northwest corner of the Pine Ridge Reservation. Several of these signs were placed warning people of the high nuclear radiation levels found in the Cheyenne River. ¶ Several weeks ago Everitt Poor Thunder, a spiritual and community leader in Red Shirt, asked Defenders of the Black Hills, an environmental organization, whether the Cheyenne River water could be used to irrigate a community garden. A local well could not be used as it was found to be radioactive and warning signs surround that structure. The water well taps into the Inyan Kara aquifer that also contains the Lakota and Fall River formations, making up an extremely large aquifer of water supplies for many regions. ¶ Residents of Red Shirt occupy a village site that is thousands of years old to the Oglala Tetuwan (Sioux) people. Many have lived here all of their lives, growing gardens with water taken from the Cheyenne River and fishing for catfish, bass, and turtles. In the summer months, the river is used for swimming and other recreational pursuits. ¶ A water sample taken from the Cheyenne River was sent to a laboratory and the results revealed levels of alpha radiation above the Environmental Protection Agency's (EPA) Maximum Contaminant Level. Alpha radiation causes harm when ingested hence the warning signs were placed to warn people of the dangers in the Cheyenne River. ¶ The portion of the Cheyenne River Basin that lies in southwestern South Dakota drains about 16,500 square miles within the boundaries of the state. The area in this basin includes part of the Black Hills and Badlands, rangeland, irrigated cropland, and mining areas. After traversing the western half of the state from southwest to northeast, the Cheyenne River flows into Lake Oahe, a reservoir on the Missouri River. ¶ Previous efforts remove the radiation in the water at Red Shirt have been unsuccessful. Drinking water is piped in, or residents must drive 25 miles to the little town of Hermosa to buy water. The Cheyenne River has dried up approximately one mile from Red Shirt and tests of the river bottom soil by Defenders of the Black Hills are pending. Initial tests using a Geiger counter revealed more than double the amount of normal background elevations for radiation. ¶ South Dakota news reports recently referred to a DENR report and stated that uranium is naturally occurring in that area which is said to account for the radiation levels in the water. ¶ “If that was the case, there would not have been villages there for thousands of years. There would have been no fish or any aquatic life previously in this river. We sampled the river with nets for aquatic life and found only 2 crayfish and about 10 minnows in more than 100 yards of the river. In essence, it's a dead river. There are two endangered species that use this River: the Sturgeon chubb, a small fish, and the Bald Eagle,” explained Charmaine White Face, founder and Coordinator of Defenders of the Black Hills. ¶ According to published information in the The 2006 South Dakota Integrated Report For Surface Water Quality Assessment the Cheyenne River water quality continues to be generally poor. The lower Cheyenne drainage, in general, contains a high percentage of erodible cropland and rangeland in west central South Dakota. Historical mining records for the state show more than 4,000 exploratory uranium mining holes, some large enough for a man to fall into, in the southwestern Black Hills with an additional 3,000 holes just 10 miles west of the town of Belle Fourche, SD. These mining holes go to depths of 600 feet. ¶ At a meeting for the Defenders of the Black Hills on Feb 26th 2005, discussions centered on the radiation levels in some areas reported at a staggering 1,400 times higher than the ordinary background radiation on the Grand River in the Cave Hills and the adverse affects to the villages on the Standing Rock Indian Reservations. Also discussed was the high proportion of cancer related illnesses and birth defects especially in the small community of Rock Creek. ¶ “There are also hundreds of abandoned uranium mines in Wyoming whose runoff comes down the Cheyenne River, and also 29 abandoned mines in the southwestern Black Hills, all upstream of Red Shirt Village. One of the largest open-pit abandoned uranium mines in the southern Black Hills is a square mile and its runoff goes into the Cheyenne River,” explained Charmaine White Face. ¶ Most recently, a Canadian mining company, Powertech, began drilling uranium exploratory wells in the Dewey Burdock area northwest of Edgemont. Defenders of the Black Hills battled in court against the drilling permit allowing Powertech to drill 155 more exploratory wells at depths of 500-600 feet in the southwestern Black Hills but the Courts allowed the drilling after denying the appeal. Powertech currently has 4,000 uncapped, and unmarked uranium exploratory wells drilled previously. The mining company plans on doing In Situ Recovery (ISR) of uranium from the Lakota and Fall River aquifers. In Situ Recovery was formerly known as In Situ Leach (ISL) mining. ¶ During the ISR process, a solution to dissolve the uranium is poured down the wells and the dissolved uranium brought back up to the surface. The uranium is separated from the remaining radioactive waste solution that is then reinjected into the aquifer after being held in waste ponds on the surface. ¶ According to Powertech's mining application, each exploratory drill hole "will have a small excavated mud pit that will be approximately 12 feet by 5 feet" and 10 feet deep. ¶ Among the concerns of the environmental groups are the possibility of overflow from the mud pits with the sudden rain showers that occur in the Black Hills. One of the aquifers empties directly into the Cheyenne River and is used by many ranchers to water their livestock. Among the deeper aquifers of concern is the Madison that provides water for many western South Dakota communities. ¶ “A list of uranium mining facts provided online by our organization, Defenders of the Black Hills, reveals a long history of abuses regarding uranium and coal mining in the Upper Midwest region. In an area of the USA that has been called “the Bread Basket of the World,” more than forty years of mining have released radioactive polluted dust and water runoff from the hundreds of abandoned open pit uranium mines, processing sites, underground nuclear power stations, and waste dumps. Our grain supplies and our livestock production in this area have used the water and have been exposed to the remainders of this mining. We may be seeing global affects, not just localized affects, to the years of uranium mining” concluded Charmaine White Face. ¶ In another article by Charmaine White Face, she provides a brief outline to uranium mining -- calling it *America's Secret Chernobyl* [below]. The term Chernobyl has an interesting origin. In Russian, Chernobyl translates to Wormwood. Wormwood relates to several aromatic plants of the genus Artemisia, especially A. absinthium, native to Europe, yielding a bitter extract used in making absinthe and in flavoring certain wines -- that is adds a bitter taste. In classical literature, wormwood was metaphorical for bitter sorrow. When history writes its review of our foray into nuclear power, will we be regarded with "bitter sorrow"? ¶ Abandoned uranium mine in Black Hills National Forest, South Dakota. The Comprehensive Environmental Response, Compensationsation and Liability Act (CERCLA) was used to clean up this site.¶ Uranium Mining and Nuclear Pollution in the Upper Midwest: F A C T S H E E T America's Secret Chernobyl By Charmaine White Face, Coordinator Defenders of the Black Hills ¶ 1. Uranium mining in South Dakota, Wyoming, Montana, and North Dakota began in the middle of the 1960s. *W*orld *W*ar *II*, which ended with the nuclear bomb, introduced the use of nuclear energy for the production of electricity and caused the price of uranium to rise. As the economy of the Midwestern states depends primarily on agriculture, when uranium was discovered in the region, many get-rich-quick schemes were adopted. Not only were large mining companies pushing off the tops of bluffs and buttes, but small individual ranchers were also digging in their pastures for the radioactive metal. Mining occurred on both public and private land, although the Great Sioux Nation still maintains a claim to the area through the Fort Laramie Treaties of 1851 and 1868. ¶ 2. In northwestern South Dakota, for example, the Cave Hills area is managed by the US Forest Service. The area currently contains 89 abandoned open-pit uranium mines. Studies by the USFS show that one mine alone has 1400 mR/hr of exposed radiation, a level of radiation that is 120,000 times higher than normal background of 100 mR/yr. There are no warning signs posted for the general public anywhere near this site! It is estimated that more than 1,000 open-pit uranium mines and prospects can be found in the four state region from a map developed by the US Forest Service. ¶ 3. The water runoff from the Cave Hills abandoned uranium mines empties into the Grand River which flows through the Standing Rock Indian Reservation. Three villages are located on the Grand River and their residents have used the water for drinking and other domestic purposes for generations. One village still uses the water for drinking and domestic purposes. The water runoff from the Slim Buttes abandoned uranium mines empty into the Morreau River which flows through the Cheyenne River Indian Reservation. Four villages are located on the Morreau River; however no data is currently available about their use of the Morreau River water. Both of these rivers empty into the Missouri River which empties into the Mississippi River. ¶ 4. The following agencies are aware of these abandoned uranium mines and prospects: US Forest Service, US Environmental Protection Agency, US Bureau of Land Management, SD Department of Environment and Natural Resources, the Bureau of Indian Affairs and the US Indian Health Service. Only after public concern about these mines was raised two years ago did the USFS and the EPA pay for a study of one mine this year, 2006. ¶ 5. In Southwestern South Dakota, the southern Black Hills also contain many abandoned uranium mines. Nuclear radiation near Edgemont, SD, has already polluted the underground water of the Pine Ridge Indian Reservation according to a study completed in 1980 by Women of All Red Nations. The US Air Force also used small nuclear power plants in their remote radar stations and missile silos which number in the hundreds in this four State region. No data is available on the current status or disposal of these small nuclear power sources. ¶ 6. More than 7,000 exploration holes for uranium have been drilled in the southwestern and northwestern Black Hills. More are being planned in Wyoming. These holes go to depths of 800 feet. The exploratory process itself allows radioactive pollutants to contaminate underground water sources. South Dakota currently has no regulations for In Situ Leach mining of uranium. ¶ 7. In Wyoming, hundreds of abandoned open-pit uranium mines and prospects can be found in or near the coal in the Powder River Basin. Yet plans are being made to ship more of that coal to power plants in the Eastern part of the United States. Radioactive dust and particles will be released into the air at the power plants as well as locally in the strip mining process. Federal tax dollars totaling more than $2.3 billion dollars as a loan are planned to be given to a private business, the Dakota, Minnesota and Eastern Railroad, to increase the amount of coal hauled to the power plants. Two other railroads currently haul coal out of this area. ¶ 8. In 1972, President Richard Nixon signed a secret Executive Order declaring this four State region to be a 'National Sacrifice Area’ for the mining and production of uranium and nuclear energy. This is the same area of the 1868 Fort Laramie Treaty territory, the final home of the Great Sioux Nation. ¶ Summary This Fact Sheet regarding the past uranium mining and small underground nuclear power plants in the Upper Midwest region should give cause for alarm to all thinking people in the *U*nited *S*tates. This is the area that has been called “the Bread Basket of the World.” It is for this reason that we are bringing this issue to your attention. For more than forty years, the people of South Dakota and beyond have been subjected to radioactive polluted dust and water runoff from the hundreds of abandoned open pit uranium mines, processing sites, underground nuclear power stations, and waste dumps. Pollution does not stop at State boundaries so these places generating radioactive pollution to the air and water are also impacting the rest of the United States. Coal tainted with uranium and radiation that has gone and is going to Eastern power plants adds to the total amount of radioactive pollution. There needs to be a concerted effort to determine the extent of the radioactive pollution in the environment, and the health damage that has been and is currently being inflicted upon the people of the United States. ¶ It is imperative that a federal bill be passed in Congress appropriating enough funds for the cleanup of ALL the abandoned uranium mines in this four State region. This harmful situation must not be placed on the end of the Superfund list of hazardous sites to be addressed in twenty years. The health of the nation is threatened. The cleanup of all of these mines and underground sites must occur now! Those responsible for this disaster must *face the consequences*, but the cleanup and health concerns of the nation need to be addressed first. We hope you will consider our request for concerted actions to be taken at the national level regarding these grave concerns. This problem of radiation pollution spreading throughout the United States has been allowed to quietly continue for much too long.

**Moreover, aff is a broader internal link to structural violence – IFRs transform economic and geopolitical paradigms – eliminating gross inequality.**

Tom Blees, 2008, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, Prescription for the Planet, p. 335-6

When the material comforts of existence are seen as being limited, then consumption beyond one’s needs does indeed carry an undeniable ethical weight. As Ralph Waldo Emerson put it lo those many years ago, “Superfluity is theft.” Even when the energy and rawmaterials involved are plentiful, there remains the often conveniently ignored issue of the conditions under which goods have been produced, be they agricultural or manufactured commodities. It is disingenuous in the extreme to point to the abolition of slavery as evidence of the social evolution of mankind when millions of desperately poor people labor under conditions that can still honestly be considered as slavery. The fact that we don’t335have slaves in our home is hardly confirmation of our benevolence. The moral questions of economic fairness will not be settled by availing ourselves of the technologies promoted in this book, but should command our attention and concern indefinitely. My point is not to justify exploitation of either human or material resources, but to point out that a transformation of energy and raw material technologies as proposed herein will present a radically transformed palette upon which to paint the picture of humanity’s future. Our new course will remove the limitations by which finite natural resources and energy supplies have circumscribed our existence. Unlimited energy coupled with virtually complete recycling of materials and the production of consumer goods from plentiful or renewable resources will finally allow humanity to be unshackled from the zero-sum mentality. Raising the living standards of our billions of disadvantaged brethren will be seen as a positive development by even the most voracious consumer societies, rather than perceived with foreboding as somehow detrimental to their way of life. Admittedly this will take some getting used to. The revolution will be not just technological and political, butpsychological. The passion with which consumerism is pursued is frequently grotesque in its extremes, yet the revulsion it engenders may not be so strong when it can be viewed more as shallow foolishness than callous selfishness. Much of what is considered virtuous today will be seen more as simply a matter of personal preference in a world where creature comforts are no longer in limited supply. The concept of self-denial will have to be looked at anew. Rather than concentrating on husbanding limited resources, our attention can be turned to welcoming the rest of our fellow humans into a new reality where creature comforts are the universal norm. Abundant energy and wise336use of basic resources are the keys. Clearly the technologies are already within our grasp. This won’t happen overnight, but it would be foolish to dally. The conversion of primary power systems to fast reactors will necessarily be a gradual process, which in the best-case scenario will take a few decades. Conversion of the vehicle industry to boron, however, is another story. It is entirely conceivable that boron fueled vehicles could be driving on our highways within five years. Ironically the first boron recycling plants that would be a corollary of the conversion may end up operating with natural gas for their heat requirements, since the IFR program simply won’t be able to be implemented as quickly as the boron system, and it’s questionable whether existing electrical generation systems would be able to handle the increased demand of electrically powered boron recycling plants. This would, however, be only an interim fix, and would allow the vehicle fleets to get off to a quick start. If the plasma conversion method proves feasible, though, then garbage alone will provide all the energy we need for boron recycling. Long before the conversion to boron is complete, the demand for oil will have dropped to the point where the USA, one of the world’s thirstiest countries when it comes to oil, will be able to rely solely on North American supplies, resulting in geopolitical and economic realignments that will be a harbinger of things to come. Even though oil prices will surely plummet worldwide, and while the temporary price of boron recycling may well be higher than it will be once IFRs are able to provide all the power necessary to support the system, the price disparity will easily be great enough and the environmental benefits so overwhelming that boron vehicles will surely carry the day even in the near term.

**Solvency**

**The United States federal government should initiate a demonstration project for integral fast reactors using the S-PRISM design in the United States.**

**Plan’s mechanism results in successful commercial demonstration**

**Kirsch et all 9** [Steve Kirsch, Bachelor of Science and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology, “The Integral Fast Reactor (IFR) project: Q&A”, collaborative attempt to answer questions regarding the integral fast reactor, contribution material, peer editing and review by George Stanford, PhD, a physicist, retired from Argonne National Laboratory, B.Sc. with Honours, Acadia University, M.A.,Wesleyan University, Ph.D. in experimental nuclear physics, Yale University, Tom Blees, Science Council for Global Initiatives, Carl Page, computer science professor at MSU, page last modified 2013]

Q. What's the next step?¶ The commercial demonstration should be a top national priority. A private consortium involving GE might be able to do it as well.¶ Ideally, Congress should fund DOE to have GE build a demonstration plant built. In order to expedite certification and licensing by the NRC, the most expeditious way would be to build a reactor vessel for $50 million, stick it at a university or national lab, and instead of filling it with sodium fill it with water.Build a mockup of the fuel assemblies, also out of non-radioactive material, and use that setup-which would require no licensing-as a prototype to demonstrate to the NRC the efficacy of the systems. For example, the NRC would say, what happens if you drop a fuel assembly when refueling. So you'd go over and run through it with the prototype. Once the thing is certified, you could drain it and use it in an actual power plant, where a single module would produce 380MWe. They're designed to be built in power blocks of 2 reactor vessels each, feeding one large turbine that would put out 760 MW. You could fire up the first power block as soon as it's ready, even as you build further ones at the same facility. All would share a central control room and recycling facility.

**That facilitates global expansion of the IFR**

**Kirsch et all 9** [Steve Kirsch, Bachelor of Science and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology, “The Integral Fast Reactor (IFR) project: Q&A”, collaborative attempt to answer questions regarding the integral fast reactor, contribution material, peer editing and review by George Stanford, PhD, a physicist, retired from Argonne National Laboratory, B.Sc. with Honours, Acadia University, M.A.,Wesleyan University, Ph.D. in experimental nuclear physics, Yale University, Tom Blees, Science Council for Global Initiatives, Carl Page, computer science professor at MSU, page last modified 2013]

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.¶Q. Critics claim fast reactors are “expensive to build, complex to operate, susceptible to prolonged shutdown as a result of even minor malfunctions, and difficult and time-consuming to repair.”¶ I'm not aware of anyone who is an expert on Integral Fast Reactor technology (who actually really understands the science) who has this view. One Nobel prize winning physicist who was recently briefed on the IFR (Burton Richter, former Director of SLAC) told me that, at best, there is insufficient scientific evidence to make such a statement. Is there someone who knows the fast reactor science as well as Dr. Chang or Dr. Till who holds that view? Certainly not the MIT study (as they admitted up front). So whose expert opinion are you relying on here?¶ Secondly, if your statement was true, then aren't these statements directly in direct conflict with the facts? If the critics are to be relied upon, then none of the following would have been possible at all:¶ – The Monju reactor was undamaged by the fire (rated 1 on a scale of 0 to 7, with 7 being the most serious accident), and has been kept shut down for political reasons. I think it has been given the go-ahead to start up.¶ – The EBR-II fast reactor worked flawlessly for many years(<http://www.world-nuclear.org/info/inf98.html> 31 years from 1963-1994)¶ – The Phenix fast reactor in France has been on-line for decades.¶ – The Superphenix reactor was shut down for political reasons, after it finally had its problems behind it and was working well.¶ – The Russian BN-600 has been working well for decades.¶ Ray Hunter was for the past 29 years as the former Deputy Director of the Office of Nuclear Energy, Science and Technology in the U.S. Department of Energy (DOE). Should his view count? Here's what he wrote to me:¶ My name is Ray Hunter. I am the former Deputy Director of the Office of Nuclear Energy, Science and Technology in the U.S. Department of Energy (DOE). I spent more than 29 years in DOE and the predecessor agencies working on developing advanced nuclear reactors for civilian nuclear power applications. After evaluating several alternatives, I came to the conclusion that a sodium cooled fast reactor using metal fuel and non aqueous reprocessing offered the best option to compliment and eventually replace Light Water Reactors (LWR’s). The basis for my conclusion was the successful proof of principle demonstration work completed by Argonne National Laboratory. It is important to understand that there were had two versions of the IFR concept; the second version involved a sodium cooled reactor using mixed uranium oxide and plutonium oxide fuel and aqueous reprocessing. The second version required separating Plutonium-239 for fabrication into new fuel which was considered to be a major proliferation issue. Unfortunately, the Clinton administration considered all fast reactors concepts as too much of a proliferation risk and cancelled all work on fast reactors. Actually, the decision to forgo processing of LWR fuel as enacted into law by 1982 Radioactive Waste Management Policy Act was the precursor for ending fast reactor technology development. The Department did continue to support in corporation with industry advanced LWR designs for future use.These advanced designs have been approved by the Nuclear Regulatory Commissions but none have been ordered in the U.S. because of the unresolved waste issue and the economic risk of trying to build and license a nuclear power plant in the U.S. Versions of these advanced LWR designs have already been built and are operating in Japan and South Korea.¶ The ill conceived U.S. policy of a once through LWR fuel cycle has never been adopted by any other nuclear power nation. According to Senator Reid, Yucca Mountain will not proceed as long as his any say in the matter. Until there is a path forward on LWR spent fuel, it is unlikely any new nuclear plant will be built in the U.S. The technical facts clearly show that the most cost effective and environmentally sound way to deal with LWR spent fuel is use the IFR concept with metal fuel and non aqueous reprocessing. While the proposed GNEP concept does not require plutonium separation, it is still based on oxide fuel and aqueous reprocessing which does allay proliferation concerns. Also, the GNEP concept is being offered as global solution for minimizing nuclear proliferation based on certain countries doing reprocessing including the U.S. but our current law precludes it. ¶ I am attaching a recent letter I sent to Senator Reid. In my judgment, we need to focus on the waste issue to break the logjam on nuclear power in the U.S. We don’t need to deploy the IFR in the private sector for the foreseeable future to get the benefits of expanded nuclear power use. If inviting the IAEA to oversee IFR facilities at government sites would promote acceptance of reprocessing, then we should proceed accordingly. Any thoughts you have on this matter would be appreciated.¶ Q. A lot of critics claim the plants will be too expensive to build.¶ The cost of a power plant is often expressed in terms of dollars per kilowatt of capacity. Every $1,000/kWe in initial cost adds, very roughly, one cent per kilowatt-hour to the cost of the electricity (assuming a 40-year write-off period and an interest rate of 8.5% per year).¶ The cost of a nuclear plant is very hard to predict these days, because it depends heavily on the regulatory climate. In more detail, here's something Eric Loewen (GE) has written on the subject of cost:¶ . . . This is not to say that PRISM or any other nuclear reactor will be inexpensive when built in the United States. The same GE Hitachi reactors that were built in Japan in the late 90s for about $1,400/kWare estimated to cost several times that much in the USA. Considering that the actual cost of raw materials is an insignificant portion of that price (about $35/kW), and that interest rates are at record low levels, the significantly higher price tags being bandied about by private utility companies reflects a regulatory/corporate/governmental environment that needs fixing. Part of the problem could be solved by a commitment to nuclear power from the federal government, streamlined licensing procedures for standardized designs, and shielding from interminable lawsuits like those that crippled the nuclear power industry in the 70s and 80s. ¶ There is nothing inherently uneconomical about nuclear power. Japan imports virtually all their building materials and has high labor costs. If they can build GE ABWR plants for a very reasonable price, there is no reason why the USA shouldn't be able to do the same.¶ Q. How many IFR plants do we need to replace all the coal plants in the US?¶ There are 200 nuclear plants now supplying 20% of our power. Coal provides about half our power. So you'd need about 400 new nuclear plants to displace all the coal plants.

**The plan solves cost-competitiveness and international adaptation –**

**a. Gradual upsizing of demonstration plants**

**Till 11** [“PLENTIFUL ENERGY ¶ The Story of the Integral Fast Reactor¶ The complex history of a ¶ simple reactor technology, ¶ with emphasis on its ¶ scientific basis for non-specialists¶ CHARLES E. TILL, Nuclear physicist and associate lab director at Argonne National Laboratory West, and YOON IL CHANG”]

Some notion of likely cost competitiveness can be gained from past fast reactor ¶ construction experience, but the information available is limited. It can be said that ¶ the capital costs per MWe of the early fast reactors built around the world were¶ much higher than those of LWRs. But the comparisons are not by any means direct ¶ and unambiguous. In comparison to the LWR, every difference between the two ¶ adds a cost increment to the fast reactor. With one significant exception, they were¶ *much smaller in size* and electrical capacity than the LWRs built for commercial ¶ electricity generation. There were only a few of them. They were built as ¶ demonstration plants, by governments underwriting fast reactor development. There ¶ was basically one demonstration per country, with no follow-on to take advantage ¶ of the experience and lessons learned. Nor were they scaled up and replicated. The ¶ LWR had long since passed the stage where first-of-a-kind costs were involved, and ¶ had the advantage of economies of scale as well. Further, their purpose was ¶ commercial, with the attendant incentive to keep costs down. None of this has ¶ applied to fast reactors built to the present time.¶ Experience with thermal reactor types, as well as other large-scale construction, ¶has shown that capital cost reduction follows naturally *through a series of demonstration plants of increasing size once feasibility is proven*. This has been ¶ true in every country, with exceptions only in the periods when construction ¶ undergoes lengthy delays due to organized anti-nuclear legal challenges. But this ¶ phased approach of multiple demonstration plants is no longer likely to be ¶ affordable, and in any case, with the experience worldwide now, it is probably ¶unnecessary for a fast reactor plant today. Estimating the ―settled down‖ capital ¶ cost potential is not an easy task without such experience. Nevertheless, as the ¶ economic competitiveness of the fast reactor is taken to be a prerequisite to ¶commercial deployment, we do need to understand the capital cost potential of the ¶ fast reactor and what factors influence it. 275

**b. Retrofitting and government support**

**Salmon 9** [Reuters, “Nuclear power: Going fast”, Felix Salmon, finance editor for Reuters, graduate of University of Glasgow, winner of 2010 Excellence in Statistical Reporting Award presented by the American Statistical Association, over a decade of financial reporting experience, JUNE 23, 2009]

I was offline most of yesterday attending a high-intensity series of presentations hosted by Esquire magazine in the magnificent suite of rooms at the top of the new Hearst tower. GE’s Eric Loewen was there, talking about nuclear power, and specifically what he calls a PRISM reactor — a fourth-generation nuclear power station which runs on the nuclear waste generated by all the previous generations of nuclear power stations.¶ PRISM is GE’s name for an integral fast reactor, or IFR, and it’s a pretty great technology. The amount of fuel which already exists for such reactors would be enough to power the world for millennia — no new mining needed. Fast reactors also solve at a stroke the problem of what to do with the vast amounts of nuclear waste which are being stockpiled unhappily around the world. They’re super-safe: if they fail they just stop working, they don’t melt down. And they can even literally replace coal power stations:¶ One nice thing about the S-PRISM is that they’re modular units and of relatively low output (one power block of two will provide 760 MW). They could be emplaced in excavations at existing coal plants and utilize the same turbines, condensers (towers or others), and grid infrastructure as the coal plants currently use, and the proper number of reactor vessels could be used to match the capabilities of those facilities. Essentially all you’d be replacing is the burner (and you’d have to build a new control room, of course, or drastically modify the current one). Thus you avoid most of the stranded costs. If stranded costs can thus be kept to a minimum, both here and, more importantly, in China, we’ll be able to talk realistically not just about stopping to build new coal plants but replacing the existing ones, even the newest ones.¶ And best of all they’re eminently affordable: Loewen showed that they could be profitable selling energy at just 5 cents per KwH — which means that you don’t need to price carbon emissions at all to make these power stations economically attractive. With pricing on carbon emissions, of course, they become even economically compelling. So what’s the problem? They’re untested, and the regulators in the US will take many years and many billions of dollars before they will approve such a project. And legislation is needed, too — including legislation allowing the use of nuclear waste as a fuel. But mainly *all that’s needed is political will*. It’s unclear the degree to which Steven Chu, the US energy secretary, supports this technology. But if he puts the weight of the Obama administration into supporting this technology and trying to make it a reality, then a lot of private capital will start flowing into the area. And it might be much, much easier to achieve ambitious carbon-emission reduction targets than many people currently think.

**c. International cooperation and modeling**

**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:/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 are really 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/](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 situationoccurs 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. Thefuel 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.

**AT: Environment Management Bad 2AC**

**Environmental management is inevitable – concrete action key**

Levy 99- PhD @ Centre for Critical Theory at Monash

Neil, “Discourses of the Environment,” ed: Eric Darier, p. 215

If the ‘technological fix’ is unlikely to be more successful than strategies of limitation of our use of resources, we are, nevertheless unable simply to leave the environment as it is. There is a real and pressing need for space, and more accurate, technical and scientific information about the non-human world. For we are faced with a situation in which the processes we have already set in train will continue to impact upon that world, and therefore us for centuries. It is thereforenecessary, *not only* to stop cutting down the rain forests, *but to* develop *real, concrete proposals for action*, to *reverse* or at least limit the effects of our previous interventions. Moreover, there is another reason why our behavior towards the non-human cannot simply be a matter of leaving it as it is, at least in so far as our goals are not only environmental but also involve social justice. For if we simply preserve what remains to us of wilderness, of the countryside and of park land, we also preserve patterns of very unequal access to their resources and their consolations (Soper 1995: 207).in fact, we risk exacerbating these inequalities. It is not us, but the poor of Brazil, who will bear the brunt of the misery which would result from a strictly enforced policy of leaving the Amazonian rain forest untouched, in the absence of alternative means of providing for their livelihood. It is the development of *policies* to provide such ecologically sustainable alternatives which *we require*, as well as the development of technical means for replacing our current greenhouse gas-emitting sources of energy. Such policies and proposals for concrete action must be formulated by ecologists, environmentalists, people with expertise concerning the functioning of ecosystems and the impact which our actions have upon them. Such proposals are, therefore, very much the province of Foucault’s specific intellectual, the one who works ‘within specific sectors, at the precise points where their own conditions of life or work situate them’ (Foucault 1980g: 126). For who could be more fittingly described as ‘the strategists of life and death’ than these environmentalists? After the end of the Cold War, it is in this sphere, more than any other, that man’s ‘politics places his existence as a living being in question’ (Foucault 1976: 143). For it is in facing the consequences of our intervention in the non-human world that the hate of our species, and of those with whom we share this planet, will be decided?

**AT: Environmental Apocalypse 2AC**

**Deploying apocalypticism effectively spurs action to save the environment – even if our rhetoric gets coopted it still solves**

**Schatz 12**– director of debate at Binghamton University, not a flesh eater

(Joe Leeson, “The Importance of Apocalypse: The Value of End-Of-The-World Politics While Advancing Ecocriticism”, Journal of Ecocriticism 4(2) July 2012, dml)

Any hesitancy to deploy images of apocalypse out of the risk of acting in a biopolitical manner ignores how any particular metaphor—apocalyptic or not—always risks getting co-opted. It *does not* excuse inaction. Clearly hegemonic forces have already assumed control of determining environmental practices when one looks at the debates surrounding off-shore drilling, climate change, and biodiversity within the halls of Congress. “As this ideological quagmire worsens, urgent problems … will go unsolved … only to fester more ominously into the future. … [E]cological crisis … cannot be understood outside the larger social and global context … of internationalized markets, finance, and communications” (Boggs 774). If it weren’t for people such as Watson connecting things like whaling to the end of the world it wouldn’t get the needed coverage to enter into public discourse. It takes big news to make headlines and hold attention spans in the electronic age. Sometimes it even takes a reality TV show on Animal Planet. As Luke reminds us, “Those who dominate the world exploit their positions to their advantage by defining how the world is known. Unless they also face resistance, questioning, and challenge from those who are dominated, they certainly will remain the dominant forces” (2003: 413). Merely sitting back and theorizing over metaphorical deployments does a *grave injustice* to the gains activists are making on the ground. It also allows hegemonic institutions to continuallydefine the debate over the environment by framing out any attempt for significant change, whether it be radical or reformist.

Only by jumping on *every opportunity* for resistance can ecocriticism have the hopes of combatting the current ecological reality. This means we must recognize that we cannot fully escape the master’s house since the surrounding environment always shapes any form of resistance. Therefore, we *ought to act* *even if we may get co-opted*. As Foucault himself reminds us, “instead of radial ruptures more often one is dealing with mobile and transitory points of resistance, producing cleavages in a society that shift about[.] … And it is doubtless the strategic codification of these points of resistance that makes a revolution possible, somewhat similar to the way in which the state relies on the institutional integration of power relationships. It is in this sphere of force relations that we must try to analyze the mechanisms of power” (96-97).

Here Foucault “asks us to think about resistance differently, as not anterior to power, but a component of it. If we take seriously these notions on the exercise and circulation of power, then we … open … up the field of possibility to talk about particular kinds of environmentalism” (Rutherford 296). This is not to say that all actions are resistant. Rather, the revolutionary actions that are truly resistant oftentimes appear mundane since it is more about altering the intelligibility that frames discussions around the environment than any specific policy change. Again, this is why people like Watson use one issue as a jumping off point to talk about wider politics of ecological awareness. Campaigns that look to the government or a single policy but for a moment, and then go on to challenge hegemonic interactions with the environment through other tactics, allows us to codify strategic points of resistance in numerous places at once. Again, this does not mean we must agree with every tactic. It does mean that even failed attempts are meaningful. For example, while PETA’s ad campaigns have drawn criticism for comparing factory farms to the Holocaust, and featuring naked women who’d rather go naked than wear fur, their importance extends beyond the ads alone6. By bringing the issues to the forefront they draw upon known metaphors and reframe the way people talk about animals despite their potentially anti-Semitic and misogynist underpinnings.

Michael Hardt and Antonio Negri’s theorization of the multitude serves as an excellent illustration of how utilizing the power of the master’s biopolitical tools can become powerful enough to deconstruct its house *despite the risk of co-optation* or backlash. For them, the multitude is defined by the growing global force of people around the world who are linked together by their common struggles without being formally organized in a hierarchal way. While Hardt and Negri mostly talk about the multitude in relation to global capitalism, their understanding of the commons and analysis of resistance is useful for any ecocritic. They explain,

[T]he multitude has matured to such an extent that it is becoming able, through its  networks of communication and cooperation … [and] its production of the common, to  sustain an alternative democratic society on its own. … Revolutionary politics must  grasp, in the movement of the multitudes and through the accumulation of common  and cooperative decisions, the moment of rupture … that can create a new world.  In  the face of the destructive state of exception of biopower, then, there is also a  constituent state of  exception of democratic biopolitics[,] … creating … a new  constitutive temporality.  (357)

Once one understands the world as interconnected—instead of constructed by different nation-states and single environments—conditions in one area of the globe couldn’t be conceptually severed from  any other.  In short, we’d all have a stake in the global commons.  Ecocritics can then utilize biopolitics to shape discourse and fight against governmental biopower by waking people up to the pressing need  to inaugurate a new future for there to be any future. Influencing other people through *argument* and *end-of-the-world tactics* is *not the same biopower* of the state so long as it doesn’t singularize itself but  for temporary moments.  Therefore, “it is not unreasonable to hope that in a biopolitical future (after  the defeat of biopower) war will no longer be possible, and the intensity of the cooperation and communication among singularities … will destroy its [very] possibility” (Hardt & Negri 347). In the context of capitalism, when wealth fails to trickle down it would be seen as a problem for the top since it would stand testament to their failure to equitably distribute wealth. In the context of environmentalism, not-in-my-backyard reasoning that displaces ecological destruction elsewhere would be exposed for the failure that it is. There is no backyard that is not one’s own. Ultimately, images of planetary doom demonstrate how we are all interconnected and in doing so inaugurate a new world where multitudes, and not governments, guide the fate of the planet.

**Kritik 2AC**

**Psychoanalysis fails**

Sharpe, lecturer, philosophy and psychoanalytic studies, and Goucher, senior lecturer, literary and psychoanalytic studies – Deakin University, ‘10

(Matthew and Geoff, Žižek and Politics: An Introduction, p. 182 – 185, Figure 1.5 included)

Can we bring some order to this host of criticisms? It is remarkable that, for all the criticisms of Žižek’s political Romanticism, no one has argued that the ultra- extremism of Žižek’s political position might reflect his untenable attempt to shape his model for political action on the curative final moment in clinical psychoanalysis. The differences between these two realms, listed in Figure 5.1, are nearly too many and too great to restate – which hasperhaps caused the theoretical oversight. The key thing is this. Lacan’s notion of traversing the fantasy involves the radical transformation of people’s subjective structure: a refounding of their most elementary beliefs about themselves, the world, and sexual difference. This is undertaken in the security of the clinic, on the basis of the analysands’ voluntary desire to overcome their inhibitions, symptoms and anxieties.

As a clinical and existential process, it has its own independent importance and authenticity. The analysands, in transforming their subjective world, change the way they regard the objective, shared social reality outside the clinic. But they do not transform the world. The political relevance of the clinic can only be (a) as a supporting moment in ideology critique or (b) as a fully- fl edged model of politics, provided that the political subject and its social object are ultimately identical. Option (*b*), Žižek’s option, rests on the idea, not only of a subject who becomes who he is only through his (mis) recognition of the objective sociopolitical order, but whose ‘traversal of the fantasy’ is immediately identical with his transformation of the socio- political system or Other. Hence, according to Žižek, we can analyse the institutional embodiments of this Other using psychoanalytic categories. In Chapter 4, we saw Žižek’s resulting elision of the distinction between the (subjective) Ego Ideal and the (objective) Symbolic Order. This leads him to analyse our entire culture as a single subject–object, whose perverse (or perhaps even psychotic) structure is expressed in every manifestation of contemporary life. Žižek’s decisive political- theoretic errors, one substantive and the other methodological, are different (see Figure 5.1)

The *substantive problem* is to equate any political change worth the name with the total change of the subject–object that is, today, global capitalism. This is a type of change that can only mean equating politics with violent regime change, and ultimately embracing dictatorial government, as Žižek now frankly avows (*IDLC*412–19). We have seen that the ultra- political form of Žižek’s criticism of everyone else, the theoretical Left and the wider politics, is that no one is sufficiently radical for him – even, we will discover, Chairman Mao. We now see that this is because Žižek’s model of politics proper is modelled on a pre- critical analogy with the total transformation of a subject’s entire subjective structure, at the end of the talking cure. For what could the concrete consequences of this governing analogy be?

We have seen that Žižek equates the individual fantasy with the collective identity of an entire people. The social fantasy, he says, structures the regime’s ‘inherent transgressions’: at once subjects’ habitual ways of living the letter of the law, and the regime’s myths of origin and of identity. If political action is modelled on the Lacanian cure, it must involve the complete ‘traversal’ – in Hegel’s terms, the abstract versus the determinate negation – of all these lived myths, practices and habits. Politics must involve the periodic founding of entire new subject–objects. Providing the model for this set of ideas, the fi rst Žižekian political subject was Schelling’s divided God, who gave birth to the entire Symbolic Order before the beginning of time (*IDLC*153; *OB*144–8).

But can the political theorist reasonably hope or expect that subjects will simply give up on all their inherited ways, myths and beliefs, all in one world- creating moment? And can they be legitimately asked or expected to, on the basis of a set of ideals whose legitimacy they will only retrospectively see, after they have acceded to the Great Leap Forward? And if they do not – for Žižek laments that today subjects are politically disengaged in unprecedented ways – what means can the theorist and his allies use to move them to do so?

**No root cause to the Aff**

Curtler ’97 – PhD Philosophy

(Hugh, “rediscovering values: coming to terms with postnmodernism” 44-7)

The second and third concerns, though, are more serious and to a degree more legitimate. The second concern is that "reason is the product of the Enlightenment, modern science, and Western society, and as such for the postmodernists, it is guilty by association of all the errors attributed to them, [namely], violence, suffering, and alienation in the twentieth century, be it the Holocaust, world wars, Vietnam, Stalin's Gulag, or computer record-keeping . . ." (Rosenau 1992, 129). Although this is a serious concern, it is hardly grounds for the rejection of reason, for which postmodernism calls in a loud, frenetic voice. There is precious little evidence that the problems of the twentieth century are the result of too much reason! On the contrary. To be sure, it was Descartes's dream to reduce every decision to a calculation, and in ethics, this dream bore fruit in Jeremy Bentham's abortive "calculus" of utilities. But at least since the birth of the social sciences at the end of the last century, and with considerable help from logical positivism, ethics (and values in general) has been relegated to the dung heap of "poetical and metaphysical nonsense," and in the minds of the general populace, reason has no place in ethics, which is the proper domain of feeling. The postmodern concern to place feelings at the center of ethics, and judgment generally—which is the third of their three objections to modern reason—simply plays into the hands of the hardened popular prejudice that has little respect for the abilities of human beings to resolve moral differences reasonably. Can it honestly be said of any major decision made in this century that it was the result of "too much reason" and that feelings and emotions played no part? Surely not. Can this be said in the case of any of the concerns reflected in the list above: are violence, suffering, and alienation, or the Holocaust, Vietnam, Stalin's Gulag, or Auschwitz the result of a too reasonable approach to human problems? Noone could possibly make this claim who has dared to peek into the dark and turbid recesses of the human psyche. In every case, it is more likely that these concerns result from such things as sadism, envy, avarice, love of power, the "death wish," or short-term self-interest, none of which is "reasonable."One must carefully distinguish between the methods ofthe sciences, which are thoroughly grounded in reason and logic, and the uses men and women make of science. The warnings of romantics such as Goethe (who was himself no mean scientist) and Mary Shelley were directed not against science per se but rather against the misuse of science and the human tendency to become embedded in the operations of the present moment. To the extent that postmodernism echoes these concerns, I would share them without hesitation. But the claim that our present culture suffers because of an exclusive concern with "reasonable" solutions to human problems, with a fixation on the logos, borders on the absurd.What is required here is not a mindless rejection of human reasonon behalf of "intuition," "conscience," or "feelings" in the blind hope that somehow complex problems will be solved if we simply do whatever makes us feel good. Feelings and intuitions are notoriously unreliable and cannot be made the center of a workable ethic. We now have witnessed several generations of college students who are convinced that "there's no disputing taste" in the arts and that ethics is all about feelings. As a result, it is almost impossible to get them to take these issues seriously. The notion that we can trust our feelings to find solutions to complex problems is little more than a false hope.We are confronted today with problems on a scale heretofore unknown, and what is called for is patience, compassion (to be sure), and above all else, clear heads. In a word, what is called for is a balance between reason and feelings—not the rejection of one or the other. One need only recall Nietzsche's own concern for the balance between Dionysus and Apollo in his Birth of Tragedy. Nietzscheknew better than his followers, apparently, that one cannot sacrifice Apollo to Dionysus in the futile hope that we can rely on our blind instincts to get us out of the hole we have dug for ourselves.

**Extinction first—every being has life, have to save the most lives possible**

BERNSTEIN ‘2

(Richard J., Vera List Prof. Phil. – New School for Social Research, “Radical Evil: A Philosophical Interrogation”, p. 188-192)

There is a basic value inherent in**organic**being, a basic affirmation, "The Yes' of Life" (IR 81). 15 "The self-affirmation of being becomes emphatic in the opposition of life to death. Life is the explicit confrontation of being with not-being. . . . The 'yes' of all striving is here sharpened by the active `no' to not-being" (IR 81-2). Furthermore — and this is the crucial point for Jonas — this affirmation of life that is in all organic being has a binding obligatory force upon human beings. This blindly self-enacting "yes" gains obligating force in the seeing freedom of man, who as the supreme outcome of nature's purposive labor is no longer its automatic executor but, with the power obtained from knowledge, can become its destroyer as well. He must adopt the "yes" into his will and impose the "no" to not-being on his power. But precisely this transition from willing to obligation is the critical point of moral theory at which attempts at laying a foundation for it come so easily to grief. Why does now, in man, that become a duty which hitherto "being" itself took care of through all individual willings? (IR 82). We discover here the transition from is to "ought" — from the self-affirmation of life to the binding obligation of human beings to preserve life not only for the present but also for the future. But why do we need a new ethics? The subtitle of The Imperative of Responsibility — In Search of an Ethics for the Technological Age — indicates why we need a new ethics. Modern technology hastransformed the nature and consequences of human action so radically that the underlying premises of traditional ethics are no longer valid. For the first time in history human beings possess the knowledge and the power to destroy life on this planet, including human life. Not only is there the new possibility of total nuclear disaster; there are the even more invidious and threatening possibilities that result from the unconstrained use of technologies that can destroy the environment required for life. The major transformation brought about by modern technology is that the consequences of our actions frequently exceed by far anything we can envision. Jonas was one of the first philosophers to warn us about the unprecedented ethical and political problems that arise with the rapid development of biotechnology. He claimed that this was happening at a time when there was an "ethical vacuum," when there did not seem to be any effective ethical principles to limit ot guide our ethical decisions. In the name of scientific and technological "progress," there is a relentless pressure to adopt a stance where virtually anything is permissible, includ-ing transforming the genetic structure of human beings, as long as it is "freely chosen." We need, Jonas argued, a new categorical imperative that might be formulated as follows: "Act so that the effects of your action are compatible with the permanence of genuine human life"; or expressed negatively: "Act so that the effects of your action are not destructive of the future possibility of such a life"; or simply: "Do not compromise**the conditions for**an indefinite continuation of humanity on earth**"; or again turned positive:** "In your present choices, include the future wholeness of Man among the objects of your will." (IR 11)

**Only the perm removes critique from insulation – key to motivate action**

**Schatz 12**– (Joe Leeson, “The Importance of Apocalypse: The Value of End-Of-The-World Politics While Advancing Ecocriticism”, Journal of Ecocriticism 4(2) July 2012, dml)

There are three things ecocriticism must keep in mind to retain its effectiveness in the poststructuralist era. First and foremost ecocritics must not allow their infighting over tactics and academic maneuvers to become debilitating. Ecocritics have enough on their plate fighting dominant political institutions. To never directly take up arms against ecologically destructive practices will merely cede potential avenues of resistance while we fight amongst ourselves. We must take from those ecocritics we partially disagree with what we can and then operate from a different platform so as to always be spectral in our resistance. Adopting varied tactics enables an ecological coalition centered on the connectedness that arises from the belief that we all have a shared stake in the planet. Awakening to our collective stake in the environment can overcome the illusionary boundaries of the nation-state, species, or even sentience. Every molecule of the Earth’s ecology is interconnected. When one part dies we all stand on the brink of extinction. For ecocriticism to embrace this interconnection it *must not erect borders* between different approaches so long as the foundation of the struggle is premised upon the commons of our universe. Unfortunately, “what characterizes much campus left discourse is a substitution of moral rhetoric about evil policies[, leaving] … absent … a sober reckoning with the preoccupations and opinions of the vast majority of Americans … who do not believe that the discourse of ‘anti-imperialism’ speaks to their lives” (Isaac). As a result, there is a need for ecocritics to not just *speak to the choir* that mostly already agrees with them. They must also speak to the populations who don’t intuitively see the link between imperialism, technology, and capitalism with environmental destruction. Apocalyptic rhetoric *can do precisely that* because of its underlying tenant of self-preservation.

The above point is absolutely crucial because ecocriticism *cannot be effective* if its focus never goes beyond the individual alone. No single person is the entire ecology so *no individual can save it*. While each individual undoubtedly impacts the environment and can cause change, no large scale transformation can take place if we never inspire collective action. In evolutionary terms, ideas, thoughts, and actions must be passed on in order to survive. For that to happen it takes a combined effort, even though it can start by a single mutation. Luke reminds us that

the typical consumer does not control the critical aspects of his or her existence[.] … The absurd claim that average consumers only need to shop, bicycle, or garden their way to an ecological future merely moves most of the responsibility and much of the blame away from the institutional centers of power whose decisions actually maintain the wasteful, careless ways of material exchange[. It also] … ignores how corporate capital, big government, and professional experts pushed the practices of … affluent society … as a political strategy to sustain economic growth, forestall mass discontent, and empower scientific authority. People did choose to live this way, but their choices were made from a very narrow array of alternatives presented to them as rigidly structured, prepackaged menus of very limited options. (Luke, 1997: 127-128)

In turn, ecocritics must not displace the blame away from current hegemonic structures by calling on individuals to act alone. Instead ecocriticism must articulate its arguments to influence change in both institutions of power and the very peoplewhose mindsets make up the current collective. Many environmental groups have been able to do precisely that. For instance, “NGOs and social movements active in global civil society have … introduce[ed] … dystopian scenarios … as rhetorical devices that act as ‘wake-up calls’… to jolt citizens out of their complacency and … foster … *public deliberation* about the potential cataclysms facing humankind” (Kurasawa 464). Ecocritics must not cut down such NGOs for adopting end-of-the-world tactics even though their rhetoric might get co-opted when specific policies get enacted.

**Not mutually exclusive yall**

**Schatz 12**– director of debate at Binghamton University, not a flesh eater

(Joe Leeson, “The Importance of Apocalypse: The Value of End-Of-The-World Politics While Advancing Ecocriticism”, Journal of Ecocriticism 4(2) July 2012, dml)

Despite the merits of ontological ecocriticism, using it to prohibit ecocritical appeals for concrete action fractures a movement that should work in coalition. We should not approach our choices as an either/or situation. Strategies ofdirect action can be compatible with Heideggerian thought so long as we understand such action as always already inevitable and not a way to enframe others. Deploying apocalyptic threats can challenge hegemonic systems sincethey serve as a catalyst for evolving change instead of legislating it. In fact, “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 … can act as catalysts for public debate and socio-political action, spurring citizens’ involvement in the work of preventive foresight” (Kurasawa 458).

Put plainly, we must understand any action in both its social and political dimensions. As the way we confront environmental challenges change so too does the conditions surrounding ecocriticism. To alter conditions in the political or social realm is always already to impact the other. This allows us to redeploy even problematic deployments in order to reshape the public debates surrounding ecological awareness.

**Debating about the state 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**

**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 aproblematic 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).

**Critiques of science will be exploited by groups interested in destroying the environment**

Ted **BENTON**Sociology @ Essex **5** in *After Postmodernism* eds. Jose Lopez and Garry Potter p. 137-138

Second, the post‑Kuhnian relativist aproaches to the sociology of science, in challenging the proclaimed finality and cultural authority of big science, saw themselves as on the side of 'the underdog', pressing for democratic account­ability on the part of the scientific establishment ‑ even for a thoroughgoing democratisation of knowledge itself. Sociologists of science have tended to see 'technoscience' as indissolubly tied to political and industrial power and domin­ation. To call into question its epistemological authority has been to undermine a key source of legitimation for established power. However, the politics of the critique of science becomemore complex and ambivalent in the face of the new ecological issues. While many Greens see the interests associated with technoscience as largely to blame for many ecological hazards, they also rely on scientific detection, measurement and theoretical explanations in making out the Green case. The construction of incinerators for waste disposal adjacent to working‑class estates, the noise and fumes emitted by heavy road‑traffic, the loss of treasured landscapes and so on, are forms of ecological degradation which are readily perceptible, and may enter directly into the discourses of popular movements. However, many other, often moresinister and catastrophic, forms of ecological transformation may only be detected by scientific instrumentation. Nuclear and other forms of radiation, low concentrations of toxins in food and drinking water, antibiotic‑resistant pathogens, shifts in the chemical composi­tion of the upper atmosphere and so on fall into this category. In other cases, the scale of transformation is what is ecologically significant and, here again, scientific modelling and measurement displace the evidence provided by the senses of necessarily localised human agents. Global climate change, biodiversity loss, ozone depletion are among the transformations which fall into this category. Finally, rational discourse about policy options depends on (but is certainly not restricted to) best‑available scientific thinking about thecausal mechanisms involved(the 'greenhouse' effect, CO2 exchanges at the surface of the oceans, pholovvnthesis, mechanisms of cloud‑formation and many others in the case of dinsate 'hanged. To expose thenormatively and culturally 'constructed' character of those scientific research programmes which have so far indcnt‑ifled, measured and explained the hazardous dynamics of ecological change is to run a serious political risk. The big industrial complexes, such as the biotech, pharmaceutical, agribusiness, petrochemical, construction and road transport sectors, together with their state sponsors, *have a lifeline thrown to them.*That the knowledge ‑base which exposes the ecological 'externalities' of their activities is culturally biased and epistemologically questionable is music to their ears. Why put the brakes on wealth creation and progress on the basis of such flimsy and questionable evidence (see R. Rowell, 1996, esp. chap. 5)? These misuses of the work of constructionist sociology of environmental science are often seen as problematic from the standpoint of its practitioners (see, for example, r} a special issue of Social *Studies of Science, 1996).*Of course, it would be quite posble to accept these implications of he approach, in the face of unwanied political consequences: perhaps the weakening or even abandoning of environmental regulation and technteal safety standards could be accepted as an appropriate response to the sociologied dchunking of en ironmental science. lot esnnglv, however, few constructionists would be happy with such an out­conic. the question is, can they coherently or consistently unhappy about it? Winne i9% and Burninghaio md. Coopei (1999) oiler sophisticated defences of their own variants of construe onism from this sort of 'realist' criticism. They claim, variously, that the 'taking of sides' in environmental conflicts is not necessarily the most productive role for social scientists to take, and that, not­withstanding rite realist [critique. it](http://critique.it/) often possible to combine constructionism with cotmitiimmred cn'‑ironmen iahsns. These contributions deserve much fuller responses than I have space for here hot, as I shall argue below. dicnt are other reasons for scepticism about the more radical versions of constructionism.

**Their argument is structurally inaccurate – they scapegoat the MIC – there is not vast military conspiracy to drive war profiteering and cover-up information**

George Bause (former Lieutenant Colonol in the US air force) 1974 “Myths, Realities, and

the Military-Industrial Complex” <http://www.airpower.au.af.mil/airchronicles/aureview/1974/sep-oct/bause.html>

accusations against the MIC¶ It seems that to explore the MIC adequately we must consider those characteristics of the complex that most of its critics ascribe to it. To do this we must deal with the idea of conspiracy, the element of secrecy, the subject of preparation as confrontation, the level of defense spending, war profiteering, military retirees in industry, the size of the complex, the lack of control over it, and the evaluation of the MIC as “institutionally rigid.”¶ Conspiracy. American history is replete with the writings of many who see conspiracy at every turn. Richard Hofstadter, in his Paranoid Style in American Politics (1965), used the phrase “paranoid style” in describing the grand theories of conspiracy of those persons who have obvious feelings of persecution. The perception of the person evidencing this approach to life sees an amorphous group of agents who have a design upon the resources of the land and its people. The paranoid stylist sees his role as being unselfish and full of deep patriotism, quite righteous, and morally indignant. The rhetoric of the conspiracy claimants has been labeled for what it is. No evidence has been produced to substantiate a de facto conspiracy. To label as “conspiracy” a concern about national security says more about the perceptions of the accuser than it does about the situation. Honestdifferences amongst all elements of the MIC are as varied as the general population. People connected with the complex are among the strongest advocates of détente, SALT, and a smaller voluntary military.¶ Secrecy. The question of secrecy looms large to many when matters of a military nature are discussed, and perhaps it will loom even larger as a result of present domestic problems in government. Since those outside the complex do not possess information and often question the credibility of information provided by the military or the government, questions are raised as to the validity of considered threats. The secrecy game is insidious because it can be used so simplistically as to invalidate any discussion. Critics will have to decide how valid the annual posture statements of the Secretary of Defense are. There are very few areas that are not available for public discussion. Size of forces, amounts of arms, contractual developments, and relative strengths are in the public domain. Internal efforts within the Department of Defense evidence not only awareness of this concern but positive steps to raise the level of public understanding and discussion. The broad accusation of a conspiracy of silence and secrecy can be substantiated in some few situations but cannot be supported as a blanket accusation.¶ Confrontation. Often the claim is made that military preparation leads necessarily to confrontation, that a force in readiness is a force anxious to exercise its war muscles. It seems that certain elements feel that they are the only ones who want a state of peace. Is there not a legitimate place in the world for a maintenance of peace? The notion of a complete trust system, wherein one can accept in faith the idea that a state system or even an international system can bring peace and a cessation of hostility, does not equate with any picture of man in either modern ethical systems or ancient ones. Biblical understanding of man usually places man in two worlds (often pictured, as in the language of Augustine, as two cities): the city of God, founded on love and trust of God and our fellowman, and its earthly opposite, the city of Man, founded symbolically by Cain. Cain’s city always has with it some aspect of the venom of his original fratricide. God’s city is a trust system; man’s city a distrust system. There is ample history to substantiate the latter. The logical corollary for a system designed to maintain peace and deter aggression is the vocation of military service. Can reason suggest that the role of government is to withdraw from the protection of its people? All forms of power, whether sexual, economic, political, or military, have potential for misuse. But to isolate one form of power without relating it to its function and its need in an imperfect world seems less than responsible.¶ Defense spending. Another rather obvious fiction is the concern voiced by many that the defense budget has loose purse strings and a runaway percentage of the economy. The claim has been made that it has less control and less scrutiny than other programs emanating from Washington. This myth is just not true in fact or practice, past or present. The defense budget receives more scrutiny, not less. Systems analysis, planning, programming and budgeting systems, and other tools of cost analysis have been applied more in the Department of Defense than in any other government activity. The number of military personnel has been decreased from 3,547,000 in 1968 to 2,199,000 in 1974, and the defense budget from 12 percent of the gross national product in 1954 to 5.9 percent in 1973.¶ Furthermore, one’s consideration of cost must relate it to the total American economy. Complexes surrounding education, medicine, farm products, transportation, etc., derive their support from several levels of government (state, county, and municipal), whereas the military budget is drawn totally from the federal coffer. The subject of our national commitments and our national responsibility to the world at large needs balanced study before the United States exits from the international arena. Recent struggles in the Near East and the accompanying energy crisis reinforce the significant global role of the United States today.¶ War profiteering. Accompanying the controversy over the runaway defense budget was the contention, always renewed in America during and after wars, of the making of enormous war profits. A spiraling inflation, together with the high cost of sophisticated weaponry and the ever increasing cost overruns, easily substantiated the general distrust of an anguished and long-suffering nation. The popular image presented in numerous volumes and articles on war profiteering was finally put to rest with more extensive audits by the General Accounting Office in the Defense Industry Profits Study of March 1971. The study shows, among other things, that thirty-two large defense contractors selected at random who did more than ten percent of their total business with DOD made basically the same profit as thirteen contractors, also randomly selected, who did less than ten percent of their business with DOD.¶Military retirees in industry. A corollary to the profiteering myth is the idea that the number of retired military participating in second careers with war-making industries is excessive or, even worse, is another symptom of the evils of the MIC. Calculations drawn from a study made by Senator William Proxmire indicated that only eight percent of the officers, colonel through general, were employed by the 100 largest defense industries. Even high estimates place only forty percent of all retired military in the defense and aerospace sector of the economy. It hardly seems wrong or a necessary evil to expect persons with specific skills and developed vocational roles to pursue a second career in an area where they have background and experience. When questions of proportionality, level of entry, and diversification of employment are thoroughly analyzed, the evidence gives very little that is conclusive. Early fears in this area, inflamed by rhetoric and exaggeration, have subsided with each new study.¶ Size of MIG. If the former fictions and exaggerations are accepted, there still needs to be some consideration given to the problem implicit in any core of interest as large and powerful as that associated with the MIC, but these concerns and implications could well be leveled against any other big complex. To isolate them as an evil in one area without relating to all structures is an argumentum ad hominem and adds little to thoughtful discourse.¶ Lack of control. Critics frequently point out that the concern for national security which unites military, industrial, and governmental security planners lacks any kind of countervailing force in the social order. This seems to neglect the fact that there are numerous and strong countervailences within the complex. Not only do we find a variety of views within the military itself but also we find independent groups within government (Senate, House of Representatives, National Security Council, etc.) and outside government (RAND Corporation, Brookings Institution), all of which have had impact in trying to keep expenditures down, reduce procurement, and develop decision-making processes for a time of restraint. Again, it is important to note that systems analysis, planning-programming-budgeting systems, as well as other means of relating costs to effectiveness, have been pioneered in government by the Department of Defense. Would that other complexes were able to make judgments in social and educational areas as effectively.¶ Rigidity. Finally, the general accusation is frequently made that the MIC is institutionally rigid. Those who delight in this argument stereotype the military and those associated with it. The discipline of order, regulation, and institutional commitment are symptoms that impede innovation or adaptation. To validate this argument, a critic would have to be aware of the process of change occurring within all facets of the MIC. It seems difficult for persons within the structures to comprehend fully all the changes taking place. To draw a fair comparison, one would have to make a study relating the degree of changes among several complexes, such as the teaching-administration-education complex, the physician-medicine-hospital complex, and other similar interlocking structures. It is very difficult to justify the generality that members of the MIC are any more conservative institutionally than administrators, doctors, teachers, etc.¶ the facts to be known¶ Modern technology has had enormous impact on the defense scene. The requirement to understand the complexities of the management of a continuous flow of new systems has created an entirely new atmosphere for the men and women who manage, operate, and maintain current systems. It certainly is not an atmosphere that lacks change. Thus the changing scene has thrust upon persons within the military—and in the MIC as well—the need to be adaptive as well as innovative. The static scene of a “Beetle Bailey” environment is an anachronism in the light of change. The very nature of the demands has a significant influence on the person selected, the kinds of peers he competes with, the continuous education he receives, and the advancement that comes to a person of ability. It is obvious to persons inside and outside the MIC that change in the complex is integral to its life at this stage in history. A maginot-line mentality is a guarantee of failure for the military as well as industrial support systems.¶ It seems to me that the time is more than past for persons of good will to stop scapegoating the MIC and start affirming the fact that our nation needs and demands cooperation among technology, management, industry, government, and the military to solve the problems of security and deterrence. There is not a MIC conspiracy; arguments as to secrecy have been exaggerated, and public information is available to the seeker; preparation is responsible and does not necessitate confrontation; spending is under control; profiteering is grossly exaggerated; countervailing forces do exist; and the labeling of the MIC as institutionally rigid is not accurate.

\*MIC = Military-Industrial Complex

**No link to nuclear lobby bad arguments – IFR advocates are:**

**A. Freelance scientists and policy analysts opposed by coal**

**Blees 9** [“The Integral Fast Reactor (IFR) project: Congress Q&A”, question and answers posed by Congressional staffers in 2009, Tom Blees, Science Council for Global Initiatives]

Who is pushing it and what do they stand to gain?¶ The IFR started to get wind in its sails with the recent publication of two books by freelance authors working independently with no ties to any of the industries involved. Prescription for the Planet by Tom Blees, and Beyond Fossil Fools by Joe Shuster, each sketch out a blueprint to virtually eliminate greenhouse gas emission by mid-century. The common thread in both is massive deployment of IFR technology, though Blees's book also employs two other little-known technologies that would work synergistically with it. Both authors simply want to save the planet, and have no financial or other connection with industry whatsoever.¶ ¶ Who is opposed to it?¶ Certainly the coal industry will oppose it, for it would completely put them out of business. Blees's plan would also eliminate the need for oil and gas, and would eliminate the casus belli for most of the wars we fight, so the entire fossil fuel industry sector and the arms merchants will hate it. Manydoctrinaire antinuclear groups will likewise oppose it unless they're willing to wake up to the fact that it solves all the problems with nuclear power that they've been worried about. But major environmentalist groups that oppose nuclear have so painted themselves into a corner that they stand to lose half their membership if they now embrace anything with the word nuclear in it, and these are big businesses (notwithstanding their nonprofit status). So don't look for ideologues to come over too quickly. Individual members of some of these groups are already deserting the antinuclear stance. See Mark Lynas: the green heretic persecuted for his nuclear conversion to see what happened when a prominent British environmentalist and member of the Green Party, Mark Lynas, embraced IFRs.

**B. Retired, non-corporate scientists – and corporations aren’t pushing**

**Stanford 9** [“The Integral Fast Reactor (IFR) project: Congress Q&A”, question and answers posed by Congressional staffers in 2009, George Stanford]

Who is pushing it and what do they stand to gain? ¶ It's being pushed by people who understand the urgency of the need to embark on a long-term, sustainable energy policy. I don't think they have anything to gain, financially --certainly I and my colleagues don't. Corporations or consortia that get contracts might gain, but they don't seem to be pushing at this point.¶ ¶ Who is opposed to it?¶ The main opposition comes from environmental groups with *a strong financial interest* in collecting contributions from a worried public. While they tend to get many facts wrong, the fundamental flaw in their position is their failure to recognize that the world is turning more and more to nuclear power as an important part of their energy mix, and that U.S. leadership in the field is vital for preventing the largely unsafeguarded spread of weapons-capable technology.¶ There also is a marked tendency to seriously overestimate the amount that intermittent, "renewable" sources such as wind and solar power can realistically contribute to the nation's energy mix.

**Plan creates a paradigm shift in resource usage that can foster global access to electricity without increasing structural violence**

**Blees 9**[“Integral Fast Reactors for the masses”, Brave New Climate, Posted on 12 February 2009 on post by Barry Brook, Professor of Climate Change @ University of Adelaide, Tom Blees, National Center for Atmospheric Research]

Chris, advances in technology include very real advances in efficiency of our electrical devices, which is why California has been able to maintain a flat per capita electricity consumption for 30 years, and as someone who lives in California I can assure you that our efficiency is far from draconian, and that we could do a LOT better with little effort. There is no reason to believe that new technologies will cause us to require ever-greater amounts of electricity. On the contrary, in fact. Besides, you’re not going to get away from new technology, it’s an unstoppable evolutionary process (barring utter catastrophe). Watch Star Trek. Maybe it’ll give you a little more optimistic view.¶ Developing countries, however, *will demand much more energy* (electrical and otherwise) per person as they improve their standard of living. With IFR technology it shouldn’t be a problem providing it safely, economically, and cleanly. We needn’t go backwards, nor do we need todiscourage every country from working toward a standard of living that those in the developed countries take for granted, just so long as we recycle everything as I describe in Prescription for the Planet. Between effortless recycling using plasma recyclers and power provided by IFRs, we can achieve standard of living fairness without being worried about running out of resources. I realize that *breaking free of the zero-sum paradigm* is a bit of a mind stretch, but it’s doable. That’s what P4TP is really all about: illuminating the path to a post-scarcity society. The technologies are only the tools to get there.¶ There is nothing particularly virtuous about a regression to some mythical “good old days.” And if we manage to utilize technologies that allow us to be even profligate consumers of energy (though that’s really not necessary) without damaging the environment or being unfair to our fellow man, that is not inherently a bad thing. There are a lot of mental constructs that will have to be re-examined in light of the sort of *resource revolution* I propose in my book. It won’t really matter if you drive around in a boron-powered zero-emission Hummer that’s made of garbage, what my son Shanti calls a “guilt-free car.” I urge you to read it not necessarily for the technological details but to get a picture of what the future could look like, a far brighter future than you might imagine.

**Alt fails – rampant consumerism inevitable absent the plan**

**Blees 9**[“Integral Fast Reactors for the masses”, Brave New Climate, Posted on 12 February 2009 on post by Barry Brook, Professor of Climate Change @ University of Adelaide, Tom Blees, National Center for Atmospheric Research]

The approach in P4TP is one that recognizes the futility of relying on behavioral modification to effect full compliance with guidelines of any kind. Look at recycling: Some people have 3 or 4 trash cans in their kitchen to recycle in a still-not-entirely-effective manner. Most people have one, or two at most. Same with energy conservation. Many people screw in twisty light bulbs and turn lights out when they leave a room. Yet many people don’t do one or the other of these things, or both, even highly educated people who consider themselves environmentally conscious. If we’re trying to save the planet, it behooves us to try to set things up in such a way that even egregiously irresponsible people won’t be harming the environment when they proceed with their daily lives. And that CAN be done. It might not sit well with those who consider frugality or responsible behavior or asceticism as virtues, but that’s really beside the point. Those are value judgements about which our biosphere couldn’t care less. Do you find rampant consumerism foolish? Me too. But I’d rather that people who don’t could pursue their lifestyle in such a way that our planetary health doesn’t suffer because of it. Can that be done? I believe so, and that is the sort of resource revolution that I sketch out in P4TP. We can still achieve a certain level of energy responsibility by metering electricity, even if the fuel for the power plants is free, and we shouldbecause that’ll prevent a lot of profligacy in energy use and thus prevent us having to build lots more power plants needlessly. But to a great extent such behavioral modification is difficult in other spheres (like recycling), and that’s where technological solutions are preferable. Likewise with driving: if our cars pollute, we should drive less. If our cars don’t pollute, and if acquiring their fuel doesn’t require any sort of environmental insult, should we care?¶ If our cultures are dysfunctional, we can try to improve them, but if we have the means to end the environmental damage caused by cultural dysfunction, let’s work on that and worry about the dysfunction on a different level. Too often the dissatisfaction (or even disgust) that those who consider themselves environmentalists feel about what they perceive as their less mature fellow humans is reflected in a drive toward neo-primitivism, claiming that we MUST diminish our standard of living (however that may be measured) if we are to avoid environmental catastrophe. They often express a determination to force such changes in the sort of lifestyle of which they disapprove, whether through legislation, rationing, or other means.¶ It all gets very religion-like, with a disdain for the unvirtuous. Why not create a world where the environmental impact of personal behavior is inconsequential, if possible. Let’s leave virtue out of it. It certainly doesn’t seem like appealing to personal responsibility works too wellanyway.¶ When you get right down to it, are our societies today more dysfunctional than they ever were? I have my doubts about that. We’re evolving as a species. If we can manage to not despoil our habitat to the point where it becomes unlivable perhaps we can continue the progress. It’s pretty discouraging sometimes, I grant you that. But we’re all stuck on this ball for a short ride, so we might as well make the best of it.

**Critiques of science will be exploited by groups interested in destroying the environment**

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**State focused nuclear power solutions key – solves their impact better**

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

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

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

**Incentives-based environmental action in the context of nuclear power is good---key to policy effectiveness**

Economist 5 (The Economist, April 21, “Rescuing environmentalism”, <http://www.economist.com/node/3888006>

THE environmental movement's foundational concepts, its method for framing legislative proposals, and its very institutions are outmoded. Today environmentalism is just another special interest.” Those damning words come not from any industry lobby or right-wing think-tank. They are drawn from “The Death of Environmentalism”, an influential essay published recently by two greens with impeccable credentials. They claim that environmental groups are politically adrift and dreadfully out of touch. They are right. In America, greens have suffered a string of defeats on high-profile issues. They are losing the battle to prevent oil drilling in Alaska's wild lands, and have failed to spark the public's imagination over global warming. Even the stridently ungreen George Bush has failed to galvanise the environmental movement. The solution, argue many elders of the sect, is to step back from day-to-day politics and policies and “energise” ordinary punters with talk of global-warming calamities and a radical “vision of the future commensurate with the magnitude of the crisis”. Europe's green groups, while politically stronger, are also starting to lose their way intellectually. Consider, for example, their invocation of the woolly “precautionary principle” to demonise any complex technology (next-generation nuclear plants, say, or genetically modified crops)that they do not like the look of. A more sensible green analysis of nuclear power would weigh its (very high) economic costs and (fairly low) safety risks against the important benefit of generating electricity with no greenhouse-gas emissions. Small victories and bigger defeats The coming into force of the UN's Kyoto protocol on climate change might seem a victory for Europe's greens, but it actually masks a larger failure. The most promising aspect of the treaty—its innovative use of market-based instruments such as carbon-emissions trading—was resisted tooth and nail by Europe's greens. With courageous exceptions, American green groups also remain deeply suspicious of market forces. If environmental groups continue to reject pragmatic solutions and instead drift toward Utopian (or dystopian) visions of the future, *they will lose* the battle of ideas. And that would be a pity, for the world would benefit from having a thoughtful green movement. It would also be ironic, because far-reaching advances are already under way in the management of the world's natural resources—changes that add up to a different kind of green revolution. This could yet save the greens (as well as doing the planet a world of good). “Mandate, regulate, litigate.” That has been the green mantra. And it explains the world's top-down, command-and-control approach to environmental policymaking. Slowly, this is changing. Yesterday's failed hopes, today's heavy costs and tomorrow's demanding ambitions have been driving public policy quietly towards market-based approaches. One example lies in the assignment of property rights over “commons”, such as fisheries, that are abused because they belong at once to everyone and no one. Where tradable fishing quotas have been issued, the result has been a drop in over-fishing. Emissions trading is also taking off. America led the way with its sulphur-dioxide trading scheme, and today the EU is pioneering carbon-dioxide trading with the (albeit still controversial) goal of slowing down climate change. These, however, are obvious targets. What is really intriguing are efforts to value previously ignored “ecological services”, both basic ones such as water filtration and flood prevention, and luxuries such as preserving wildlife. At the same time, advances in environmental science are making those valuation studies more accurate. Market mechanisms can then be employed to achieve these goals at the lowest cost. Today, countries from Panama to Papua New Guinea are investigating ways to price nature in this way (see article). Rachel Carson meets Adam Smith If this new green revolution is to succeed, however, three things must happen. The most important is that prices must be set correctly. The best way to do this is through liquid markets, as in the case of emissions trading. Here, politics merely sets the goal. How that goal is achieved is up to the traders. A proper price, however, requires proper information. So the second goal must be to provide it. The tendency to regard the environment as a “free good” must be tempered with an understanding of what it does for humanity and how. Thanks to the recent Millennium Ecosystem Assessment and the World Bank's annual “Little Green Data Book” (released this week), that is happening. More work is needed, but thanks to technologies such as satellite observation, computing and the internet, green accounting is getting cheaper and easier. Which leads naturally to the third goal, the embrace of cost-benefit analysis. At this, greens roll their eyes, complaining that it reduces nature to dollars and cents. In one sense, they are right. Some things in nature are irreplaceable—literally priceless. Even so, it is essential to consider trade-offs when analysing almost all green problems. The marginal cost of removing the last 5% of a given pollutant is often far higher than removing the first 5% or even 50%: for public policy to ignore such facts would be inexcusable. If governments invest seriously in green data acquisition and co-ordination, they will no longer be flying blind. And by advocating data-based, analytically rigorous policies rather than pious appeals to “save the planet”, the green movement could overcome the scepticism of the ordinary voter. It might even move from the fringes of politics to the middle ground where most voters reside. Whether the big environmental groups join or not, the next green revolution is already under way. Rachel Carson, the crusading journalist who inspired greens in the 1950s and 60s, is joining hands with Adam Smith, the hero of free-marketeers. The world may yet leapfrog from the dark ages of clumsy, costly, command-and-control regulations to an enlightened age of **informed, innovative, incentive-based greenery**.

**Framework**

**Imagining scenarios, even if unlikely or flawed in construction, is key to good analysis—the Aff isn’t a research paper, don’t grade it like one, just dismiss poorly constructed impacts**

Wimbush ‘8 – director of the Center for Future Security Strategies

(S. Enders, senior fellow at the Hudson Institute and the author of several books and policy articles, “A Parable: The U.S.-ROK Security Relationship Breaks Down”, Asia Policy, Number 5 (January 2008), 7-24)

What if the U.S.-ROK security relationship were to break down? This essay explores the alternative futures of such a scenario. Analyzing scenarios is one technique for trying to understand the increasing complexity of strategic environments. A scenario is an account of an imagined sequence of events. The intent of a scenario is to suggest how alternative futures might arise and where they might lead, where conflicts might occur, how the interests of different actors might be challenged, and the kinds of strategies actors might pursue to achieve their objectives. Important to keep in mind is that scenarios are nothing more than invented, in-depth stories—stories about what different futures could look like and what might happen along plausible pathways to those futures. *The trends and forces that go into building a scenario may be carefully researched, yet a scenario is not a research paper*.Rather, it is a work of the imagination. As such, scenarios are, first, tools that can help bring order to the way analysts think about what might happen in future security environments; second, scenarios are a provocative way of revealing possible dynamics of future security environments that might not be apparent simply by projecting known trends into the future. Scenarios are particularly useful in suggesting where the interests and actions of different actors might converge or collide with other forces, trends, attitudes, and influences. By using scenarios, to explore the question “what if this or that happened?” in a variety of different ways, with the objective of uncovering as many potential answers as possible, analysts can build hedging strategies for dealing with many different kinds of potential problems. *Though they may choose to discount some of these futures and related scenarios, analysts will not be ignorant of the possibilities*, with luck avoiding having to say: “I never thought about that.”

**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).

**Simulating public positions in debate is vital to becoming smarter and solving environmental problems**

**MacGregor and Szerszynski, Institute for Environment, Philosophy & Public Policy at Lancaster University, ‘3  (Sherilyn and Bronislaw, “Environmental Citizenship and the Administration of Life”, July,**<http://www.ncl.ac.uk/geps/research/politics/MacGregorandSzerszynskipap.doc>)

Firstly, in relation to ‘changing one’s mind’, we want to argue that environmental citizenship should focus not on listing ways of changing values and priorities but on participatory expertise (Torgerson, 1999:81, Fischer, 2000), on basic skills of citizenship such as informed scepticism towards expert knowledge, on bringing a reflexive questioning angle to public debates, and so on. Environmental citizenship should not be about changing one’s mind from wrong to right, but continuously cultivating a citizenly attitude towards environmental and other issues. This does not mean simply changing *private* thoughts, but learning the habits of engaging in *public* thought. It is from this, rather than from the following of rules, that changes in practices should flow. In individual decisions such as those involved in consumption practices, what should be encouraged is not rule-following but enlarged (Arendt, 1978) or dilemmatic (Billig et al., 1988) thinking. Rather than such decisions being conceived as resulting from the monological operation of an isolated mind, based on fixed knowledge and values, they should be seen as the result of an internal dialogue, a simulacrum of public debate between different positions in the ideological dilemmas involved in ecological and other contemporary issues. Rather than encouraging people to seek a pure, green self or subjectivity, securing an untroubled, private green ‘goodness’ through the application of green knowledge and values – for example by following the Earth Charter – environmental citizenship should involve a continual openness to the dilemmas and uncertainties of green action.

Secondly, concerning ‘doing one’s bit’, it is problematic that environmental citizenship tends to be reduced to lifestyle changes that can be confined to the private sphere. Not only does this risk obscuring questions of fairness and equality (especially as regards the gendered division of unpaid domestic work), but it also obscures the structural (i.e., social, economic, political) causes of environmental unsustainability. It seems naïve, even dangerous, to assume that the cumulative effect of each small individual ‘bit’ will be *enough* to make up for the tangled mess of much bigger bits of ecological destruction that occur (rather are *allowed* to occur) simultaneously. (How much industrial pollution is emitted whilst aluminium cans are being washed and squashed in 25 million households?) Green ‘lifestyle’ is here being conflated with citizenship, closing off the larger debate about the common good. Private acts such as green consumer choices and recycling are about maintaining purity within oneself and following rules rather than putting oneself at risk, getting ones hands dirty thorough *appearing to others in the political realm*. It is not that we are arguing against recycling and green consumerism; rather we are arguing that it is possible to do it and think about it differently; lifestyle change has be informed by public thought, reflective judgement and enlarged thinking.

**Security**

**Rejection of securitization causes the state to become more interventionist—turns the K**

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The following section will briefly raise some questions about the rejection of the old security framework as it has been taken up by the most powerful institutions and states. Here we can begin to see the political limits to critical and emancipatory frameworks. In an international system which is marked by great power inequalities between states, the rejection of the old narrow national interest-based security framework by major international institutions, and the adoption of ostensibly emancipatory policies and policy rhetoric, has the consequence of **problematising weak or unstable states** and allowing international institutions or major states *a more interventionary role,* yet without establishing mechanisms by which thecitizens of states being intervened in might have any control over the agents or agencies of their emancipation. Whatever the problems associated with the pluralist security framework **there were at least formal and cleardemarcations**. This has the consequence of **entrenching international power inequalities** and allowing for a shift towards a hierarchical international order in which the citizens in weak or unstable states may arguably have even less freedom or power than before.  \

**No lash out – institutional safeguards check**

Buchanan 7 [Allen, Professor of Philosophy and Public Policy at Duke, 2007, Preemption: military action and moral justification, pg. 128]

The intuitively plausible idea behind the 'irresponsible act' argument is that, other things being equal, the higher the stakes in acting and in particular the greater the moral risk, the higher are the epistemic requirements for justified action. The decision to go to war is generally a high stakes decision par excellence and the moral risks are especially great, for two reasons. First, unless one is justified in going to war, one's deliberate killing of enemy combatants will he murder, indeed mass murder. Secondly, at least in large-scale modem war, it is a virtual certainty that one will kill innocent people even if one is justified in going to war and conducts the war in such a way as to try to minimize harm to innocents. Given these grave moral risks of going to war, quite apart from often substantial prudential concerns, some types of justifications for going to war may simply be too subject to abuse and error to make it justifiable to invoke them.  The 'irresponsible act' objection is not a consequentialist objection in any interesting sense. It does not depend upon the assumption that every particular act of going to war preventively has unacceptably bad consequences (whether in itself or by virtue of contributing lo the general acceptance of a principle allowing preventive war); nor does it assume that it is always wrong lo rely on a justification which, if generally accepted, would produce unacceptable consequences. Instead, the "irresponsible act' objection is more accurately described as an agent-centered argument and more particularly an argument from moral epistemic responsibility.The 'irresponsible act' objection to preventive war is highly plausible if— but only if—one assumes that the agents who would invoke the preventive-war justification are, as it were, on their own in making the decision to go to warpreventively. In other words, the objection is incomplete unless the context of decision-making is further specified. Whether the special risks of relying on the preventive-war justification are unacceptably high will depend, inter alia, upon whether the decision-making process includes effective provisions for redu­cing those special risks. Because the special risks are at least in significant part epistemic—due to the inherently speculative character of the preventive war-justification—the epistemic context of the decision is crucial. Because institutions can improve the epistemic performance of agents, it is critical to know what the institutional context of the preventive-war decision is, before we can regard the 'irresponsible agent' objection as conclusive. Like the 'bad practice' argument, this second objection to preventive war is inconclusive because it does not consider— and rule out—the possibility thatwell-designed institutions for decision-making  could address the problems that would otherwise make it irresponsible for a leader to invoke the preventive-war justification.