**1NC T**

#### Interpretation - ‘financial incentives’ precludes direct purchases from the government

Edward W. Nelson et al (M.D., former Chairman of the OPTN/UNOS Ethics Committee, James E. Childress, Ph.D. Jennie Perryman, R.N., M.S.N. Victor Robards, M.D. Albert Rowan Michael S. Seely, R.N., B.S.N. Sylvester Sterioff, M.D. Mary Rovelli Swanson, R.N., M.B.A.) 1993 “Financial Incentives for Organ Donation” http://optn.transplant.hrsa.gov/resources/bioethics.asp?index=4

A definition of terms is necessary prior to a discussion of the concept of financial incentives for organ donation. First, financial incentives, as discussed here, do not mean additional monies spent for public or professional education or recognition and counseling of organ donor families. Because the concept of financial incentives fundamentally changes the process of organ procurement, it has been argued that the term "donor" is no longer applicable and would need to be replaced by a term such as 'vendor." The term "rewarded gifting" has been suggested and has been justly criticized as an oxymoron by those opposed to financial incentives and a despicable euphemism by those who promote this concept. Of greatest practical significance is the distinction between "incentive" and "payment" since a system of financial incentives may indeed be a viable option if, as interpreted by law, "incentives" do not amount to "purchases" and "donors" are therefore not transformed into 'vendors."

#### Vote Neg for Limits – allowing direct purchases multiplies the number of affs and hurts pre-round preparation for all debates

**1NC CP**

#### The United States federal government should

#### develop and deploy sun shade technology

* **fund and implement a biocharcoal initiative that includes using fast-growing trees and charcoal to sequester CO2 emissions**

#### should repeal the Budget Control Act and ensure adequate DOD funding

#### promote smart-grid technology on forward-deployed military bases.

#### The plan can’t solve warming for a century – the counterplan reflects radiation and solves

**Angel and Worden 6** (Roger-- a Regents Professor at the University of Arizona and is on the faculty of the UA astronomy department and the Optical Sciences College, and Research Professor of Astronomy at the University of Arizona and Director of NASA Ames Research Center, “Making moon sun-shades from moondust”, Summer 2006, Ad Astra, <http://www.nss.org/adastra/volume18/angel.html>)

The Earth's surface temperature has risen by about 1 degree Fahrenheit in the past century, with accelerated warming during the past two decades. There is new and stronger evidence that most of the warming over the last 50 years is attributable to human activities. Increasing concentrations of greenhouse gases are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise 1 to 4.5°F (0.6 to 2.5°C) in the next 50 years, and 2.2 to 10°F (1.4 to 5.8°C) in the next century, with significant regional variation. Global warming will have generally negative impacts on human life and the biosphere, so, to varying degrees, industry, scientists and policymakers are making significant efforts to mitigate the problem. Most proposals for reversing global warming are aimed at lowering greenhouse gases, most notably the Kyoto Treaty, which aims to halt the rise—and eventually to lower—greenhouse gas emissions. Technical solutions to enable current levels of economic activity to proceed with lowered emissions are under investigation and development in private industry and at universities. These solutions focus on finding non-fossil fuels, and, more to the point, non-carbon-emitting energy sources. To this end, nuclear, solar and other energy sources are promising. Dave Criswell, a physics professor at the University of Houston, is exploring the possibility that solar energy captured on the Moon could be relayed to Earth to satisfy much of its future energy needs. But even if fossil-fuel burning were stopped tomorrow, the current exceptionally high level of carbon dioxide in the atmosphere would take more than a century to dissipate. Other solutions under study therefore include the capture and underground sequestration of atmospheric carbon. Here we explore another approach for mitigating global warming, or indeed global climate change of any origin, by placing a shield at the Earth-Sun L1 point to redirect sunlight away from the Earth (or toward it to mitigate cooling). Shields Many experts have discussed a screen in space to mitigate global warming. A 2000 study by Bala Govindasamy and Ken Caldeira showed that a screen yielding a 1.8 percent reduction in solar flux **could fully reverse the current effect** of the doubling of CO2. In a controlled orbit near L1, a screen would remain permanently lined up to block a small fraction of the solar radiation. To be effective, these huge "sunglasses" would have to be 1,000 miles across, and even at gossamer thickness would weigh millions of tons. In 1989, engineer James Early, whose work fostered the creation of Telstar-1, the first American communications satellite, proposed a blocker made of thin ribbed glass to deflect the sunlight. He recognized that the costs of launching so much mass from Earth could be prohibitive, and that a practical solution might be found by making the shield from lunar material. Solar power could be used to process the material into glass and structural elements, and to drive a magnetic rail for launch into the L1 orbit. Early's idea is now worth revisiting. The value of maintaining a viable climate can be determined in different ways, and is likely to be in the range of $5 to $10 trillion—again, just a few percent of world GNP over the next 50 years. In order to find this balance, research is needed now to better understand if a shade could be implemented within the above cost ceiling, and within a few decades. To steer the full spectrum of sunlight away from the Earth, the glass needs an average thickness of about 2 micron—a fiftieth that of a human hair. Even at such light weight, a thousand- mile diameter sheet will weigh 10 million tons. To build the shield in 30 years, glass production would need to be about 1,000 tons a day, along with several hundred tons a day of titanium or aluminum for structural components. The electric power needed to mine the ore and to process it, and to accelerate 1,500 tons a day to escape the Moon and reach the L-1 point, at a 3 km/sec launch speed would be about 500 megawatts. This would require a solar plant with a couple of square kilometers of solar cells weighing about 2,000 tons. The shade would be built not as a single structure but as a constellation of many identically sized, free-flying parasol elements. For example, if each self-contained unit were as small as a 14-meter square and weighed about 1 kilogram, ten billion units would be needed to make up the shield. In manufacture, the Moon-derived structural metal would be fashioned into ultra-lightweight support struts at free-orbiting factories near L1. The screen itself, cut in squares from a 14meter-wide roll of thin glass also delivered from the Moon, would be attached to a structural cross with four 10-meter-long struts connected at a center hub. Each unit would include tilting reflecting panels, to be used as solar sails for initial placement within the constellation and for station-keeping, particularly to stabilize any drift in the unstable longitudinal direction. We envision the constellation as being like a large shoal of fish or flock of birds, with station-keeping control largely by autonomous computers in each unit to prevent collisions or self- shadowing. A local positioning system like GPS would also be used. To make ten billion units of 14-meter squares in 30 years (10,000 days) would require manufacture and placement of a million units a day at L1. If there were 1,000 factories working in parallel, each factory would have to complete a unit in little more than a minute. The factories would need to use sophisticated robots made on Earth, and might weigh in the range of 1 to 10 tons each. Economics We can make some estimate of the value of global warming from the current "carbon credit" market. Following the 1997 Kyoto Treaty, individuals or nations can purchase excess "credits" for atmospheric emission of carbon dioxide from nations that produce less than their allocated treaty quota. This amount varies between a few dollars to more than $60 per metric ton. The doubling of carbon dioxide in the Earth's atmosphere that the shield described above **would alleviate corresponds** to about 400 billion tons. Mitigating this using the carbon credit analogy would be worth trillions of dollars. The cost might be financed by selling shield credits to both nations and industries. If a group were to purchase a set amount of shield structure, this would translate directly into carbon credits. In this way, the entire project might be financed "off budget" from government funds. How to Proceed The shield would require three major high-tech elements that would likely be manufactured and launched from the Earth. The first would be the package to enable material production and launch on the Moon. This would include the robots, electronics, solar cells, wire, bearings, motors and high-temperature ceramics for the lunar manufacturing and for the rail gun to launch the manufactured items back off the Moon. It would also include the pilot facilities on the Moon to bootstrap the local manufacture of structural elements used in full-scale lunar operations. We estimate the total mass to be delivered to the Moon at around 10,000 tons. At L1, the 10 billion control units at 1 gram will also each weigh 10,000 tons, and so will the 1,000 robotic assembly factories if we allow 10 tons each. The total mass to be launched from Earth for the entire screen project of 30,000 tons is less than 0.2 percent of the screen's final mass, and even at today's high launch costs of $20,000/kg would cost less than $1 trillion to launch. Reductions in launch cost, however, would be desirable to give cushion and flexibility to the project. The cost of manufacturing the elements to be launched, including the development of the manufacturing and robotic techniques, might bring their costs to $10,000/kg or $3 trillion. Another $20 billion per year might be allocated for project management. The estimated total of less than $5 trillion is not out of line with the value of the shield—$5 to $10 trillion over several decades. The developments needed for this application with potentially immense benefits to human life on Earth are consistent with the New Vision for Space Exploration, which aims at more affordable access to space beyond near-Earth orbit. We identify several specific near-term activities that should be undertaken. It would be desirable and practical to develop and place a few prototype blocker units at L1 within a few years, to test positioning and station keeping by solar sails. The materials would be consistent with expected lunar products, and the units should have the correct mass, about 1 kg for the example we have chosen. A key requirement for the glass is that it remain crystal-clear for a century. The Sun produces darkening or "solarization" in some glass materials over long periods of time. We need to find glass that is resistant to this effect. Prospecting for the optimum lunar ores will be required. Techniques to produce the glass ingots on the Moon and to mass-produce the ribbed sheets need to be developed and tested. We envision that ultimately the glass would be rolled up for launch. Another valuable near-term step is, thus, to computer-simulate and optimize the "collective intelligence" of the blocker swarm for robustness and stability. The free-flyer control units will have to last for a century or more. Since there will likely be millions of failures, there must also be a system to identify failed units and sweep them out for refurbishment or replacement before the swarm is damaged. In Conclusion A global-warming Sun shield is a very challenging project, to say the least, but is not clearly impossible within the financial target. It seems certain that it would attract the best and brightest from across the world to solve the myriad of challenges involved, in a way that has not happened since Apollo or the Manhattan Project. It might also represent the first truly large-scale commercial and private-sector use of space, and would **certainly be of benefit to the entire population of Earth**. Now is the time to begin in earnest the development and testing of these critical technical steps.

#### Sequestration hollows the military

**Carafano 11** – Deputy Director @ The Kathryn and Shelby Cullom Davis Institute for International Studies and Director of the Douglas and Sarah Allison Center for Foreign Policy Studies (James Jay, October 29th 2011 “Warning shot to Obama on the budget and defense” <http://washingtonexaminer.com/opinion/columnists/2011/10/warning-shot-obama-defense-and-budget-cuts>) Jacome

“It sure is hell to be president.” Harry Truman spoke from experience.

One his worst days was April 14, 1950.  That’s when the National Security Council delivered a highly classified, 58-page report calculating the forces needed to fight the Cold War. Truman blanched. The numbers didn’t fit with his intent to trim defense budgets. He shelved the plan.

Two months later, everything changed. North Korea invaded the south. Truman became an instant convert to peace through strength. The administration launched a nationwide campaign stressing the importance of adequate defense spending.

Recently, the House Armed Services Committee sent President Obama a report outlining cuts the military would have to make under the “sequestration” formula in this year’s Budget Control Act.

Unless Congress and the president agree to an alternative long-term plan to reduce the deficit (supposedly coming from the so-called “Super Committee”), the act provides for automatic reductions in “discretionary” spending.

That means huge cuts to the Pentagon budget. In 2013 alone, sequestration would slash defense spending up to 18%. Over 10 years, the military would take a $1 trillion hit.

The HASC report translates those near-abstract numbers into what they would mean in terms of reductions in military force. The results are stunning. Every service would lose substantial capabilities.

America’s Army would lose a quarter of its active duty troops, leaving the service smaller than it was on 9/11. The scramble to assemble enough forces for Iraq and Afghanistan clearly demonstrated that the pre-September 11 Army was too small to deal with even moderate-sized contingencies.

The Navy could lose two carrier battle groups. That can’t make sense. The Navy carrier force is already too small to cover the world. When Obama committed U.S. forces to Libya, he found there was no carrier available.

The Air Force would have about of one third of the fighter planes it had in the 1990s, and even after that kind of force-gutting, there would be scant funds to buy next generation aircraft like the F-35 fighter.

Stuck with such a shrunken, mostly same-old, same-old fleet, the U.S. can never plan on having air supremacy in future conflicts—especially given the pace that potential adversaries such as China are pursuing next generation fighters and advanced air defenses of their own.

The Marine Corps makes out worst of all. Truman didn’t care much for the Marines. He once said, “the Marine Corps is the Navy’s police force and as long as I am president that is what it will remain.”

Any president who would let “sequestration” happen can’t think much more of the corps. Sequestration cuts would leave the corps short so many amphibious ships that its ability to mount any significant operation would be questionable, at best.

The Pentagon has been passing around the HASC report like Halloween candy, but the White House has yet to send a clear signal to Congress. Obama has already laid out $450 billion in defense cuts—reductions that are already eroding force capabilities and readiness. Additional cuts would simply leave the U.S. even that much less of a military power than we were when Obama came into office.

Now is the time for the president to flat out tell the Super Committee and the Congress that more defense cuts are simply unacceptable.

Should the Pentagon be forced to implement further budget reductions, any occupant of the White House confronted with the need to use the military to protect america’s interests will be in for a rude awakening.

Then they will feel the truth of Truman’s words ““It sure is hell to be president.”

**1NC DA**

Nuclear modernization will get funded now, but the defense budget is under severe pressure.

Priest, 9-15-12

[Dana, The Washington Post, “Aging U.S. nuclear arsenal slated for costly and long-delayed modernization,” <http://www.washingtonpost.com/world/national-security/us-nuclear-arsenal-is-ready-for-overhaul/2012/09/15/428237de-f830-11e1-8253-3f495ae70650_story.html>]

The U.S. nuclear arsenal, the most powerful but indiscriminate class of weapons ever created, is set to undergo the costliest overhaul in its history, even as the military faces spending cuts to its conventional arms programs at a time of fiscal crisis.¶ For two decades, U.S. administrations have confronted the decrepit, neglected state of the aging nuclear weapons complex. Yet officials have repeatedly put off sinking huge sums into projects that receive little public recognition, driving up the costs even further.¶ Now, as the nation struggles to emerge from the worst recession of the postwar era and Congress faces an end-of-year deadline to avoid $1.2 trillion in automatic cuts to the federal budget over 10 years, the Obama administration is overseeing the gargantuan task of modernizing the nuclear arsenal to keep it safe and reliable.

#### The aff forces tradeoffs within the defense budget.

Snider, ‘12

[Annie, E&E reporter, 2-23, “Military’s alt energy programs draw Republicans’ ire,” <http://www.eenews.net/public/Greenwire/2012/02/23/2>]

The idea that the administration is using DOD as a more politically palatable vehicle for renewable energy investments is now reverberating across Capitol Hill, even as Pentagon officials flatly deny the allegations.¶ At a budget hearing last week, Navy Secretary Ray Mabus, the department's most high-profile alternative energy advocate, took volley after volley from Republicans on the House Armed Services Committee. They said that his priorities were misplaced, argued that spending on clean energy was taking money out of more important missions and hinted at a link between the Pentagon's green efforts and the prominence of former Silicon Valley clean-tech investors within the Obama administration.¶ "You're not the secretary of the energy, you're the secretary of the Navy," said Rep. Randy Forbes (R-Va.), who leads the subcommittee with jurisdiction over military energy and environment issues.¶ Prime among the lawmakers' complaints was that the military is paying a higher price for some forms of alternative energy at a time when DOD proposes cutting weapons programs and reducing forces in order to meet budget mandates.

#### Modernization is on the chopping block -- cutting funds kills deterrence and magnifies global threats.

#### Trachtenberg, ‘11

[David J., president and CEO of Shortwaver Consulting, LLC, previously served as principal deputy assistant secretary of defense (international security policy), acting deputy assistant secretary of defense (forces policy), and head of the policy staff of the House Armed Services Committee, 10-1, “Nuclear Fallback,” [http://www.nationalreview.com/articles/279610/nuclear-fallback-david-j-trachtenberg#](http://www.nationalreview.com/articles/279610/nuclear-fallback-david-j-trachtenberg)]

Political turmoil in the Middle East, Iran’s drive for nuclear weapons, and the buildup of China’s military are only a few of the worrisome trends that point to a prolonged period of global instability. Against this backdrop, the U.S. defense budget and the military capabilities it buys are being dramatically reduced in ways that will hinder our ability to shape or respond to these developments.¶ Over the next decade, defense spending will drop by anywhere from $450 billion to more than $1 trillion. The full extent of the cuts, and the national-security implications they foreshadow, are now in the hands of a congressional “supercommittee” charged with slashing overall federal spending. But cuts of this magnitude will translate into less military capability, a likely “dumbing down” of U.S. military strategy, a more problematic margin of military advantage over potential adversaries, and greater strategic risk. They are also likely to diminish America’s ability to advance U.S. policy objectives and secure a stable world order.¶ Not surprisingly, long-overdue investments in our aging and deteriorating nuclear capabilities and infrastructure — essential to maintaining a reliable and effective nuclear deterrent — are now on the chopping block as the military services seek to protect “usable” non-nuclear systems at the expense of “unusable” nuclear ones.¶ But the world remains a dangerous place, with nations and groups seeking nuclear weapons as a counter to U.S. military preponderance, a deterrent to U.S. action in regions vital to American national-security interests, a bargaining chip for political leverage, or a counter to regional threats. Nuclear weapons remain the great equalizer in world affairs, granting those that possess them greater influence over American policies and actions. Consequently, an effective and robust U.S. nuclear deterrent remains as important as ever.

#### Nuclear deterrence is necessary for global stability and preventing WMD warfare -- allowing the arsenal to atrophy guarantees CBW and EMP attacks on the US.

Schneider, ‘8

[Mark, Senior Analyst -- The National Institute for Public Policy, former senior officer in the DoD in positions relating to arms control and nuclear weapons policy, PhD in history -- USC, JD – GWU, July, “The Future of the U.S. Nuclear Deterrent,” Comparative Strategy 27.4, EBSCO]

Today, the United States, the world's only superpower with global responsibilities, is the only nuclear weapons state that is seriously debating (admittedly largely inside the beltway) about whether the United States should retain a nuclear deterrent. By contrast, the British Labour Government has decided to retain and modernize its nuclear deterrent. In every other nuclear weapons state—Russia, China, France, India, Pakistan, and allegedly Israel—there is general acceptance of the need for a nuclear deterrent and its modernization. Amazingly, the United States is the only nuclear-armed nation that is not modernizing its nuclear deterrent. Distinguished former leaders such a George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, despite the manifest failure of arms control to constrain the weapons of mass destruction (WMD) threat, call for “A world free of Nuclear Weapons” because “… the United States can address almost all of its military objectives by non-nuclear means.”1 This view ignores the monumental verification problems involved and the military implication of different types of WMD—chemical and biological (CBW) attack, including the advanced agents now available to potential enemies of the United States and our allies. A U.S. nuclear deterrent is necessary to address existing threats to the very survival of the U.S., its allies, and its armed forces if they are subject to an attack using WMD. As former Secretary of Defense Harold Brown and former Deputy Secretary of Defense John Deutch wrote in The Wall Street Journal, “However, the goal, even the aspirational goal, of eliminating all nuclear weapons is counterproductive. It will not advance substantive progress on nonproliferation; and it risks compromising the value that nuclear weapons continue to contribute, through deterrence, to U.S. security and international stability.”2 Why can't the United States deter WMD (nuclear, chemical, biological) attack with conventional weapons? The short answer is that conventional weapons can't deter a WMD attack because of their minuscule destructiveness compared with WMD, which are thousands to millions of times as lethal as conventional weapons. Existing WMD can kill millions to hundreds of millions of people in an hour, and there are national leaders who would use them against us if all they had to fear was a conventional response. The threat of nuclear electromagnetic pulse (EMP) attack, as assessed by a Congressional Commission in 2004, is so severe that one or at most a handful of EMP attacks could demolish industrial civilization in the United States.3 The view that conventional weapons can replace nuclear weapons in deterrence or warfighting against a state using WMD is not technically supportable. Precision-guided conventional weapons are fine substitutes for non-precision weapons, but they do not remotely possess the lethality of WMD warheads. Moreover, their effectiveness in some cases can be seriously degraded by counter-measures and they clearly are not effective against most hard and deeply buried facilities that are associated with WMD threats and national leadership protection. If deterrence of WMD attack fails, conventional weapons are unlikely to terminate adversary WMD attacks upon us and our allies or to deter escalation. Are there actual existing threats to the survival of the United States? The answer is unquestionably “yes.” Both Russia and China have the nuclear potential to destroy the United States (and our allies) and are modernizing their forces with the objective of targeting the United States.4 China is also increasing the number of its nuclear weapons.5 Russia is moving away from democracy, and China remains a Communist dictatorship. A number of hostile dictatorships—North Korea, Iran, and possibly Syria—have or are developing longer-range missiles, as well as chemical, biological, and nuclear weapons.6 They already have the ability to launch devastating WMD attacks against our allies and our forward deployed forces, and in time may acquire capabilities against the United States. Iran will probably have nuclear weapons within approximately 2 to 5 years.7 The United States already faces a chemical and biological weapons threat despite arms control prohibitions. Due to arms control, we do not have an in-kind deterrent. Both Iranian and Syria acquisition of nuclear weapons could be affected by sales from North Korea, which have been reported in the press.8

### 1NC Solvency

#### Can’t solve – military personnel don’t have enough expertise to deal with reactors

Parthemore and Rogers 10 (Christine and Will, Bacevich Fellow – CNAS, “Broadening Horizons: Climate Change and the U.S. Armed Forces,” Center for New American Security, April, <http://www.cnas.org/files/documents/publications/CNAS_Broadening%20Horizons_Carmen%20Parthemore%20Rogers.pdf>)

Many serious complications must be weighed as well. Military base personnel often do not have the necessary training in nuclear reactor management, oversight and regulatory credentials. Nuclear reactors would necessitate additional qualified personnel and improved physical security requirements to meet the 24/7 operations needs. As with siting for all energy production, local public resistance could be problematic. When considering the impact of a reactor casualty, the resulting impact on the operational mission effectiveness of the tenant commands on the base must also be considered so as to avoid a single point vulnerability that disables all military operations on site. And while many private companies are touting new designs for small reactors that would work well in this capacity, the technology may still be years away from fully meeting technical requirements and federal regulatory standards.13 Proliferation considerations would also need to be part of any adjudication of what types of reactors are most suitable for these purposes.

#### Military nuclear installments will be targeted for sabotage – causes accidents

Wong 12 (Kelvin, Associate Research Fellow – S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University, “Beyond Weapons: The Military’s Quest For Nuclear Power – Analysis,” Eurasia Review, 5-22, http://www.eurasiareview.com/22052012-beyond-weapons-the-militarys-quest-for-nuclear-power-analysis/)

Civilian And Military Nuclear Incidents Despite improvements in nuclear safety, public sentiment on nuclear power is generally unfavourable, particularly after a series of high-profile nuclear incidents over the years. Disasters like Chernobyl, Three Mile Island, and the recent Fukushima episodes have sorely demonstrated the perils of operating nuclear reactors, emanating be it from human error or natural calamities. Military forces have also been stung by peacetime nuclear incidents. In March 2008, the American nuclear submarine USS Houston leaked minute amounts of radiation into Sasebo naval base while on a port call, triggering condemnation from Japanese citizens in the district. In the same year, the British nuclear submarine HMS Trafalgar leaked hundreds of litres of radioactive wastewater into a nearby river while docked at Devonport naval base, raising concerns from nuclear safety experts. Mainstream Nuclear Power In The Military? Yet military scientists have not ceased to be tempted by the potential of nuclear power. In response to increasing oil prices and global supply uncertainties, and well-documented cases of logistical strain on forces operating in the Middle East in recent conflicts, the US Defense Advanced Research Projects Agency (DARPA) issued a proposal for innovative solutions in deployable compact nuclear reactors in 2010. In the proposal, DARPA outlined the need to reduce the logistical burden of supplying forward operating bases and forces without access to reliable fuel supply lines. The proposal also suggested that materials science have advanced to the stage where it might have a positive impact on deployable nuclear reactor research. While recent developments suggest that nuclear power technology can potentially be employed in unmanned aircraft and on the ground, it is unlikely to have mainstream military utility. The Cold War period was an era when general attitudes towards nuclear energy were quite favourable, and military experimentation was only limited by funding and scientific expertise. In contrast, nuclear power today has become a hotly debated issue despite its importance in powering the economies of advanced nations today. For the military, the problem with nuclear power is not just about cost and safety, but also of the nature of its operating environment. Deploying volatile nuclear reactors into harm’s way on the battlefield, where their destruction and sabotage are likely, should give military planners cause to pause.

#### Extinction

**Mcpherson 11**—Prof. of natural resources @ the University of Arizona (w/ 10 books & over 100 papers & articles) (Guy, above, 11/9/11, “Three paths to near-term human extinction,” http://transitionvoice.com/2011/11/three-paths-to-near-term-human-extinction/, alp)

Safely shuttering a nuclear power plant requires a decade or two of careful planning. Far sooner, we’ll complete the ongoing collapse of the industrial economy. This is a source of my nuclear nightmares. When the world’s 443 nuclear power plants melt down catastrophically, we’ve entered an extinction event. Think clusterfukushima, times 400 or so. Ionizing radiation could, and probably will, destroy every terrestrial organism and, therefore, every marine and freshwater organism. That, by the way, includes the most unique, special, intelligent animal on Earth. You’ve been warned repeatedly in this space, and the Guardian finally joins the party: The industrial economic system is about to blow. This burst of hope, our remaining chance at salvation, will undoubtedly be greeted with the usual assortment of protests, ridicule, and hate mail I’ve come to expect from planetary consumers who want to keep consuming the planet.

### 1NC Warming f/l

#### Don’t solve warming – timeframe and insufficient amount of reductions block

**Smith, 11** [Gar, environmental journalist, He is the former editor of Earth Island Journal, and currently edits Earth Island Institute's weekly "eco-zine" The-Edge. NUCLEAR ROULETTE: THE CASE AGAINST A NUCLEAR RENAISSANCEhttp://ifg.org/pdf/Nuclear\_Roulette\_book.pdf]

More than 200 new reactors have been proposed around the world but not enough reactors can be built fast enough to replace the world’s vanishing fossil fuel resources.2 **Even if nuclear output** **could be tripled** by 2050 (which seems unlikely in light of the industry’s record to date), this would only lower greenhouse emissions by 25 to 40 billion annual tons—**12.5** to 20 percent **of the** **reductions needed to stabilize the climate**.3 The International Energy Agency estimates that renewables and efficiency measures could produce ten times these savings by 2050. The IEA estimates that cutting CO2 emissions in half by mid-century would require building 1,400 new 1,000-MW reactors—32 new reactors every year. But since it usually takes about 10 years from groundbreaking to atom-smashing, these reactors **could not be constructed fast enough to prevent an irreversible** “**tipping” of world climate**. This hardly seems feasible since the industry has only managed to bring 30 new reactors on-line over the past ten years. Of the 35 reactors the IEA listed as “under construction” in mid-2008, a third of these had been “under construction” for 20 years or longer. Some may never be completed. By contrast, a 1.5 MW wind turbine can be installed in a single day and can be operational 4 | The Watts Bar-1 reactor, 60 miles southwest of Knoxville, Tennesee, took 24 years to build. NUCLEAR REGULATORY COMMISSION in two weeks.4 Still, the pace of nuclear construction has picked up lately. In 2010, the number of reactor projects underway had ballooned to 66—with most located in China (27) and Russia (11). And it’s not just a matter of designing and building new reactors.The construction of 1,400 new nuclear reactors also would require building 15 new uranium enrichment plants, 50 new reprocessing plants and 14 new waste storage sites—a deal-breaker since the sole proposed U.S. storage site at Yucca Mountain is apparently dead .The cost of this additional nuclear infrastructure has been estimated at $3 trillion.5 Moreover, since the operating lifetime of these new reactors would still be a mere 40 years, even if new construction was practical, quick and affordable, it would only “solve” the global-warming problem for another 40 years, at which point the plants would need to be decommissioned.

#### Nuclear power can’t solve warming -- electricity sector emissions are too small, and inevitable demand increases mean the impact is negligible at best.

Green, ‘6

[Jim, national nuclear campaigner with Friends of the Earth, has an honours degree in public health and a PhD in science and technology studies for his doctoral thesis on the Lucas Heights research reactor debates, energyscience.org.au, “Nuclear power and climate change,” November, <http://www.energyscience.org.au/FS03%20Nucl%20Power%20Clmt%20Chng.pdf>]

It is widely accepted that anthropogenic greenhouse gas emissions must be sharply reduced to avert climate change. However, nuclear power is at best a very partial, problematic and unnecessary response to climate change: • A doubling of nuclear power would reduce global greenhouse emissions by about 5%. A much larger nuclear expansion program would pose enormous proliferation and security risks, and it would run up against the problem of limited known conventional uranium reserves. • The serious hazards of civil nuclear programs - the repeatedly demonstrated contribution of civil nuclear programs to weapons proliferation, intractable waste management problems, and the risk of serious accidents. • The availability of a plethora of clean energy options - renewable energy sources plus energy efficiency - which, combined, can meet energy demand and sharply reduce greenhouse emissions. (See for example the reports produced by the Clean Energy Future Group).1 This information paper addresses the first of those arguments - the limitations of nuclear power as a climate change abatement strategy. A limited response Nuclear power is used almost exclusively for electricity generation. (A very small number of reactors are used for heat co-generation and desalination.) Electricity is responsible for less than one third of global greenhouse gas emissions. According to the Uranium Institute, the figure is “about 30%”.2 That fact alone puts pay to the simplistic view that nuclear power alone can ‘solve’ climate change. According to a senior energy analyst with the International Atomic Energy Agency, Alan McDonald: “Saying that nuclear power can solve global warming by itself is way over the top”.3 Ian Hore-Lacy from the Uranium Information Centre (UIC) claims that a doubling of nuclear power would reduce greenhouse emissions in the power sector by 25%.4 That figure is reduced to a 7.5% reduction if considering the impact on overall emissions rather than just the power sector. The figure needs to be further reduced because the UIC makes no allowance for the considerable time that would be required to double nuclear output. Electricity generation is projected to increase over the coming decades so the contribution of a fixed additional input of nuclear power has a relatively smaller impact. Overall, it is highly unlikely that a doubling of global nuclear power would reduce emissions by more than 5%.

#### Tripling current global capacity by 2050 is necessary for nuclear power to solve warming -- multiple constraints prevent that.

Squassoni, ‘8

[Sharon, Senior Associate, Nonproliferation Program -- Carnegie Endowment for International Peace, 3-12, “The Realities of Nuclear Expansion” Congressional Testimony: House Select Committee for Energy Independence and Global Warming, Washington, DC]

In 2004, Princeton scientists Stephen Pacala and Robert Socolow published a “wedge analysis” for stabilizing global climate change.3 Since fossil fuels currently emit seven billion tons of carbon/year and are projected to double that level through 2050 in the business-as-usual scenario, Pacala and Socolow considered what technologies and/or approaches might help stabilize those emissions at current levels (about 375 ppm). Seven wedges of reduced emissions (a cumulative effect of 25 billion tons through 2050, or one billion tons of carbon/year reduction at the end of that period) were postulated. One “wedge” would ultimately achieve a reduction of one billion tons per year (or 25 billion cumulative tons) by 2050. For nuclear energy to “solve” just one-seventh of the problem – lowering emissions by one billion tons per year – an additional 700 GWe of capacity would have to be built, assuming the reactors replaced 700 GWe of modern coal-electric plants.4 Because virtually all operating reactors will have to be retired in that time, this means building approximately 1070 reactors in 42 years, or about 25 reactors per year. Current global reactor capacity is 373 GWe or 439 reactors worldwide. In short, one “nuclear wedge” would require almost tripling current capacity. Mapping A “Realistic Growth” Scenario Nuclear Expansion5 The attached maps (see slide 1) depict estimates of reactor capacity growth for 2030 and 2050, according to three scenarios. The first is a “realistic growth” scenario, based on the U.S. Energy Information Administration figures for 2030.6 The second is what states have planned for 2030, or a “wildly optimistic” scenario. The third is roughly based on the high-end projections for 2050 done by MIT in their 2003 study entitled “The Future of Nuclear Power.” This 1500 GWe scenario lies between the Pacala-Socolow wedge and the Stern Review on the Economics of Climate Change estimates that nuclear energy could reduce carbon emissions between two billion and six billion tons/year (or 1800 GWe – 4500 GWe).7 A few caveats with respect to projecting nuclear energy expansion are necessary. Nuclear energy is undoubtedly safer and more efficient now than when it began fifty years ago, but it still faces four fundamental challenges: waste, cost, proliferation, and safety. It is an inherently risky business. Most industry executives will admit that it will only take one significant accident to plunge the “renaissance” back into the nuclear Dark Ages. Because of this, estimates are highly uncertain. For example, the U.S. Energy Information Administration does not use its computer model to estimate nuclear energy growth because, among other things, key variables such as public attitudes and government policy are difficult to quantify and project. That said, estimates tend to extrapolate electricity consumption and demand from gross domestic product (GDP) growth, make assumptions about nuclear energy’s share of electricity production, and then estimate nuclear reactor capacity. The United States, France, and Japan constitute more than half of total world nuclear reactor capacity (see slide 1). Yet half of the 34 reactors now under construction are in Asia.8 Under any scenario, nuclear power is expected to grow most in Asia, because of high Chinese and Indian growth and electricity demand. Under the realistic growth scenario, the U.S. Energy Information Administration estimates 2030 reactor capacity at 481 GWe. The International Energy Agency (IEA) envisions greater potential for expansion, projecting a range from 414 to 679 GWe in 2030, but the higher number would require significant policy support. With electricity consumption expected to double by 2030, nuclear energy will have a difficult time just keeping its market share – currently 16 percent of global production.9 According to the Intergovernmental Panel on Climate Change, with no change in energy policies, “the energy mix supplied to run the global economy in the 2025-2030 time-frame will essentially remain unchanged with about 80% of the energy supply based on fossil fuels.”10 Coal now provides 59% of electricity production, followed by hydroelectric power at 39% and oil and gas together provide 25%. Renewables are just 1-2% of total electricity production. Moreover, regions that have coal tend to use it, particularly for electricity generation, which increases greenhouse gas emissions. The IPCC has noted that “in recent years, intensified coal use has been observed for a variety of reasons in developing Asian countries, the USA and some European countries. In a number of countries, the changing relative prices of coal to natural gas have changed the dispatch order in power generation in favor of coal.” Many fear that states such as China and India – both of which are not subject to Kyoto Protocol targets because they are developing states – will meet their increased demand with cheap coal. Without further policy changes, according to the International Energy Agency, the share of nuclear energy could drop to 10% of global electricity production. “Wildly Optimistic” Growth Scenario Although some states, such as Germany and Sweden, plan to phase out nuclear power, the trend line is moving in the opposite direction. This growth scenario does not contain projections based on electricity demand, but instead takes at face value what states have projected for themselves. The result is a total of 700 GWe global capacity (see slide 2) – two-thirds of what one nuclear wedge to affect global climate change would require. The reason these estimates are wildly optimistic is that over 20 nations have announced intentions to install nuclear reactors. Several of these – Turkey, Egypt, and Philippines – had planned for nuclear power in the past, but abandoned such plans for various reasons. Some of these new nuclear plans are more credible than others and can be differentiated into those that have approved or funded construction, those that have clear proposals but without formal commitments, and those that are exploring nuclear energy (see slide 3). In the Middle East, these include Iran, Israel, Jordan and Yemen, with potential interest expressed by Syria, Kuwait, and the Gulf Cooperation Council states of Saudi Arabia, Oman, United Arab Emirates, Qatar, and Bahrain. In Europe, Belarus, Turkey and Azerbaijan have announced plans, as well as Kazakhstan. In Asia, Bangladesh, Thailand, Vietnam, Malaysia, and Indonesia have announced plans, and the Philippines has also expressed interest. Venezuela has also declared it will develop nuclear power. In Africa, Morocco, Tunisia, Libya, Egypt, and Nigeria have announced plans to develop nuclear power, and Algeria and Ghana have expressed interest.11 More than half of all those states are in the Middle East. Although this could result in reduced carbon emissions, because Middle Eastern states use more oil for electricity production (34%) than elsewhere, this is not where the real electricity demand is coming from. “Climate Change” Growth Scenario A rough approximation of where reactor capacity would expand in a climate change scenario is based on the high scenario of the 2003 MIT Study, “The Future of Nuclear Power.” For 1500 GW capacity, MIT estimated that 54 countries (an additional 23) would have commercial nuclear power programs. This essentially means a five-fold increase in the numbers of reactors worldwide and an annual build rate of 35 per year. In the event that smaller-sized reactors are deployed in developing countries – which makes eminent sense – the numbers could be much higher.12 If nuclear energy were assumed to be able to contribute a reduction of between two and six billion tons of carbon per year as outlined in the Stern Report, the resulting reactor capacity would range between 1800 GWe and 4500 GWe – increases ranging from six to ten times the current capacity.13 This would require building between 42 and 107 reactors per year through 2050. Impact on Uranium Enrichment Such increases in reactor capacity would certainly have repercussions for the front and back ends of the fuel cycle. Almost 90 percent of current operating reactors use lowenriched uranium (LEU). Presently, eleven countries have commercial uranium enrichment capacity and produce between 40 and 50 million SWU. A capacity of 1070 GWe – the one “wedge” scenario – could mean tripling enrichment capacity, requiring anywhere from 11 to 22 additional enrichment plants.14 A capacity of 1500 GWe would require quadrupling enrichment capacity (see slide 4).15 Further, if Stern Report nuclear expansion levels are achieved, enrichment capacity would have to increase ten-fold. In assessing where new uranium enrichment capacity might develop, the MIT study assumed that 18 states would have 10 GWe reactor capacity – the point at which domestic uranium enrichment becomes competitive with LEU sold on the international market – and thus might enrich uranium. (See slide 4 for a more modest approach, with nine additional countries enriching uranium).16 Impact on Spent Fuel Reprocessing A key question is whether an expansion of nuclear reactors would result in an expansion of spent fuel reprocessing. This is not necessarily the case, because decisions about whether to store fuel or reprocess it depend on several factors: existing storage capacities; fuel cycle approaches (once-through, one recycle, fast reactors) and new technologies; and cost. A shift to fast reactors that can burn or breed plutonium implies an increase in recycling, whether this is traditional reprocessing that separates out plutonium, or options under consideration now that would not separate out the plutonium. France and Japan now commercially reprocess their spent fuel and recycle the plutonium once in mixed oxide-fuelled reactors. Russia also reprocesses a small percentage of its spent fuel. A troubling development in the last two years from a nonproliferation perspective has been the U.S. embrace of recycling spent fuel under the Global Nuclear Energy Partnership, after a policy of 30 years of not encouraging the use of plutonium in the civil nuclear fuel cycle. Whether or not the United States ultimately reprocesses or recycles fuel, other states are now more likely to view reprocessing as necessary for an advanced fuel cycle. Constraints on Nuclear Expansion17 There are significant questions about whether nuclear expansion that could affect global climate change is even possible. In the United States, as the chief operating officer of Exelon recently told an industry conference, constraints include: the lack of any recent U.S. nuclear construction experience; the atrophy of U.S. nuclear manufacturing infrastructure; production bottlenecks created by an increase in worldwide demand; and an aging labor force.

#### Robust analysis proves nuclear power can’t mitigate climate change -- climactic effects hinder reactor effectiveness -- their authors rely on a simplistic understanding of nuclear power.

Kopytko & Perkins, ‘11

[Natalie, PhD Researcher in the Environment Department, University of York, John, former chief economist at a major international consulting firm, advised the World Bank, United Nations, IMF, U.S. Treasury Department, Fortune 500 corporations, and countries in Africa, Asia, Latin America, and the Middle East, his books on economics and geo-politics have sold more than 1 million copies, spent many months on the New York Times and other bestseller lists, and are published in over 30 languages, “Climate Change, Nuclear Power, and the Adaptation-Mitigation Dilemma,” Energy Policy, [Volume 39, Issue 1](http://www.sciencedirect.com/science/journal/03014215/39/1), January 2011, Pages 318–333, Science Direct]

Numerous analysts from industry, commerce, government, academia, andnon-profits have promoted nuclear power as an appropriate mitigation for climate change. In essentially all cases the logic of the proposal is simple and appealing: • climate change results primarily from burning fossil fuels, which releases carbon dioxide to the atmosphere; • nuclear power yields no carbon emissions as electricity is generated; • therefore nuclear power is an appropriate, indeed perhaps ideal, mitigation for climate change. Appealing as this logic model appears, it unfortunately ignores a wide range of other issues, each of which impinges upon the quest for reduced carbon emissions. Thus it is too simplistic and seriously misleads. The argument leads to easy conclusions about the suitability of nuclear power to temper climate change when in fact a more robust analysis suggests the opposite conclusion. Perhaps the single most important factor undermining the simple logic model stems from the fact that nuclear reactors require enormous amounts of water to cool or condense the coolant which transfers heat from the core to the turbines and cools the reactor core. This is why nuclear power plants are located near substantial amounts of water: the ocean, large lakes, and big rivers. If climate change affects the temperature, quality, or quantity of water, then existing nuclear power plants may be adversely affected. This paper examines several ways in which climate change has already affected water in ways that create problems for existing nuclear power plants. Specifically it examines the effects of sea level rise on nine existing coastal sites in the USA and the consequences of changes in water for inland reactors in France. Geographic Information Systems (GIS) models of sea level rise and a review of existing reports and published literature suggest that numerous existing plants have been or may be adversely affected by climate change. We call the set of interactions among climate change, water, and nuclear power the “adaptation-mitigation dilemma.” This term signals that existing and projected climate change threatens the operations and safety of existing plants and poses other challenges to efforts to adapt to climate change. Thus existing nuclear power plants may not represent a good technology for mitigation of climate change. A separate question concerns the potential of new nuclear power plants to avoid the problems with water we identify in this paper. Maybe it’s possible to build new plants that don’t suffer the syndrome of problems in the adaptation-mitigation dilemma. For reasons explained in the conclusion of this paper, however, we believe that it may be quite difficult to fully avoid the dilemmas identified here. At the very least, avoiding these challenges will add costs and possibly increase the risks of nuclear power, both of which are already severe handicaps for this technology. This paper acknowledges that sharply differing opinions abound on what, if any, role is appropriate for nuclear power in the debates about climate change. It seeks, however, to shift the analysis and debates about nuclear power away from “Is it a good, safe, cost-effective way to reduce carbon emissions?” to “What can we learn about current nuclear power plants and how they have been or probably will be affected by the climate change that has already occurred?” With this shift comes the potential for analysis that is less fought with ideological baggage that hinders a clear understanding of nuclear power.

#### Energy efficiency is coming now and will stabilize the climate

**Lovins 10** \*Amory B. Lovins (&) is Chairman and Chief Scientist of Rocky Mountain Institute and Chairman Emeritus of Fiberforge Corporation, he advises governments and major firms worldwide on advanced energy and resource efficiency, In 2009, Time named him one of the 100 most influential people in the world, and Foreign Policy, one of the 100 top global thinkers [“Profitable Solutions to Climate, Oil, and Proliferation, Amory B. Lovins, June 10th 2010, PDF]

INTRODUCTION Fortunately, many companies understand this and are investing in energy efficiency. whether or not they are concerned about climate. IBM and STMicroelectronics have long cut their carbon emissions 6% yeaf with 2- to 3-year paybacks from making their factories more energy efficient. DuPont said it would cut its 2010 global green house emissions to 60% below 1990’s; by 2006, it had achieved an 80% reduction at a S3.000-million profit. Presentation at 15 June 2009 to 9th Royal Colloquium “Climate Action: Tuning in on energy, water and food security,” Bönliamn, Sweden. Dow’s $1,000-million investment in energy efficiency has so far returned $9,000 million in savings. BP met its operational carbon reduction goals 8 years early at a $2,000-million profit. United Technologies cut its energy use per dollar 45% during 2003–07. GE is cutting its energy intensity 30% during 2005–2012 to build shareholder value. Interface may hold the record with 1996– 2008 reductions of 71% in absolute greenhouse-gas emissions while offsetting the rest, growing the company twothirds, and doubling profits. Even these achievements just scratch the surface of what is possible and worthwhile: McKinsey&Company showed (McKinsey&Company 2009) how to cut forecast 2030 global greenhouse-gas emissions by 70% at an average cost of just $6 per tonne of CO2 equivalent. Including the newer technologies and integrative designs described below would have made that potential bigger and much cheaper (less than zero). If global energy intensity—primary energy used per dollar of real GDP—continued to drift down by just 1% year-1 under canonical long-term trends of population and economic growth and of decarbonizing fuels, then global CO2 emission rates would about triple by 2100, so we would all be toast. However, can we make toast, not be toast? If energy intensity fell not by 1% but by 2% year-1, emissions would stabilize, and if intensity fell by 3–4% year-1, climate could stabilize (to the extent irreversible changes aren’t already underway). Is this conceivable? Yes: the US has spontaneously cut its energy intensity by 2–4% year-1 for most of the past few decades, under both high and low energy prices. Denmark in 1980–2006 shrank its carbon intensity 2.7% year-1. China cut its energy intensity over 5% year-1 for a quarter century through 2001.2 Attentive Western firms are profitably cutting their energy intensity 6–16% year-1. Therefore, why should 3–4% year-1 be difficult—especially since most of the forecast growth is in countries like China and India that are building their infrastructure from scratch, and can more easily build it right than fix it later? And since virtually everyone who does energy efficiency makes money, why should this be costly? Detailed analyses cited below show how the US, for example, can save about half its oil and gas use at about one-fifth of their current price, and about three-fourths of its electricity use at about one-eighth the electricity’s price. Even Japan, with 2- to 3-fold lower energy intensity, has found ways to save two-thirds of the remaining energy (National Institute for Environmental Studies 2009). These opportunities are best described in two main themes: burning oil and producing electricity. These, respectively, cause 43 and 41% of US, and roughly 45 and 30% of global, fossil-fuel carbon emissions. Electricity generation is \*50% coal fired in the US, 42% in the world, so each unit of electricity saved displaces 3–4 units of especially carbon-intensive fuel—huge climate leverage.

#### Construction of new reactors causes warming – trades off with energy efficiency

**Roche\* 7 – \***Site editor, no direct author given, but N02 Nuclear Power.org is a site created and run by Pete Roche who is an energy consultant based in Edinburgh and policy adviser to the Scottish Nuclear Free Local Authorities, and the National Steering Committee of [UK NFLA](http://nfznsc.gn.apc.org/). Pete was co-founder of the Scottish Campaign to Resist the Atomic Menace (SCRAM), he has represented Greenpeace at international meetings and is active in several other areas relating to environmental protection and nuclear power [http://www.no2nuclearpower.org.uk/reports/Opportunity\_Costs\_Nuclear.pdf, January 2007 “Opportunity Costs of Nuclear Power]

Introduction The opportunity cost of any investment is the cost of forgoing the alternative outcomes that could have been purchased with the same money. So, of course all investments will forego other opportunities, but this briefing looks at those potential investments, which would be foregone, if we invest in nuclear power. Many advocates of new nuclear construction call for a “balanced energy policy” and promote the idea that ‘we need every energy technology’ in order to successfully tackle the climate change problem. This idea suggests that we have infinite amounts of money to spend on energy projects, which is obviously nonsense. Resources are scarce, so we need to make choices. Because climate change is a serious and urgent problem then we must spend our limited resources as effectively and quickly as possible - best buys first, not the more the merrier. For each dollar we spend we need to buy the maximum amount of “solution” possible. (The “least cost” solution) On both criteria, cost and speed, nuclear power is probably the least effective climate-stabilizing option on offer. As well as being more expensive, and taking longer to implement, the problem with spending on nuclear power is that it will detract from spending on other more effective options. Not only does nuclear power drain resources away from other options, but it also distracts attention from important decisions that have to be made to support those other options. And because there are so many problems associated with getting new reactor construction off the ground, it might not work. So in the worst case we might find that efforts to tackle climate change are seriously damaged by a decision to go ahead with reactor construction. Although the nuclear industry likes to give the impression that it can now finance new reactors without taxpayer subsidies, there are still large uncertainties about how the waste and decommissioning liabilities will be financed in many countries. Thus building new reactors could be potentially storing up future opportunity costs for taxpayers which they will have to accept whether they like it or not. Catastrophic opportunity cost Since we do not have unlimited resources, we have to choose how we spend. If we buy more of one thing, then it will be necessary for us to have less of another. Because of the seriousness of the climate change threat, it is essential that we spend our limited resources on the fastest and most effective climate solutions. Nuclear power is just the opposite. Investment in more expensive nuclear power will, in effect, worsen climate change because each dollar we spend is buying less solution than it would do if we were to spend it on energy efficiency. (1) Amory Lovins, of the respected Rocky Mountain Institute, says investing in nuclear power would be the worst thing we could do for climate change, because efforts to ‘revive’ this moribund technology will divert investment from cheaper market winners – cogeneration, renewables, and efficiency. Standard studies tend to compare the cost of new reactors with alternative centralised fossil-fuelled plants. They conclude that it might be possible to revive nuclear power if construction and operation is heavily subsidised or if carbon is heavily taxed. Lovins says these efforts would be futile, because large centralised power stations are not the real competition. Neither fossil-fuel or nuclear can compete with windpower, some other renewables, combined heat and power (CHP) and energy efficiency. We should not allow fears of a looming energy gap, or the urgency of tackling climate change to stampede us into making irrational decisions. Diversification has its merits, but the strategic value of a diversified portfolio would not be enough to justify buying every technology on offer at whatever cost. Lovins calculates that one US dollar buys roughly:- • 10kWh of new nuclear electricity (at its 2004 subsidised level) • 12-17kWh of wind powered electricity • 9-17kWh of gas-fired industrial cogeneration (adjusted for carbon emissions) • 20-65kWh of residential building cogeneration (again adjusted for carbon) • anything up to 100kWh of savings from energy efficiency A portfolio of least-cost investments in energy efficiency and decentralised generation will beat nuclear power by a large and rising margin.

#### Energy efficiency is key to stave off collapse of U.S. manufacturing

**Hutchinson and Matley 12** \*Ryan Matley brings nine years of experience consulting for and working in the mining, automotive, and electric utility industries to RMI. Previously, Ryan managed a portfolio of industrial emerging technology initiatives for the Pacific Gas & Electric Company’s DSM programs. Prior to that, he spent five years consulting on process performance and market forecasts for the power generation, automotive and mining industries, Robert Hutchinson is Program Director at Rocky Mountain Institute.  After several years in Alternative Energy R&D and a Stanford MBA, Hutch focused on international management consulting.  Many years alternating between the US and Latin America built deep expertise in heavy industry, telecoms, IT services, and energy as well as deep finance skills [http://www.scientificamerican.com/article.cfm?id=undertake-radical-efficiency-to-revive-us-industry&page=2, Can Radical Efficiency Revive U.S. Manufacturing?, March 16th 2012]

Industry has long formed the foundation of America's economy, from before the first Ford Model T factory to the military-industrial complex that grew out of two world wars to the robust economic growth and high-tech innovation that followed. And whereas U.S. manufacturing is experiencing a resurgence, its old foundation—built on cheap [fossil fuels](http://www.scientificamerican.com/topic.cfm?id=fossil-fuels) and plentiful electricity—is showing cracks. Rising and volatile fuel prices, supply-[security](http://www.scientificamerican.com/topic.cfm?id=security) concerns and pressures on the environment are wrecking balls thumping away at many of the underpinnings of our country's key industries—and thus our prosperity. Fortunately, we can render these wrecking balls harmless through a systematic drive to upgrade industrial energy efficiency. Even with no technology breakthroughs such an effort can, in just over a generation, transform U.S. industry and provide 84 percent more output in 2050 consuming 9 to 13 percent less energy and 41 percent less fossil fuel than it uses today. This scenario, outlined in [Reinventing Fire](http://www.reinventingfire.com), a book and strategic initiative by Rocky Mountain Institute (RMI), can help U.S. industry build durable competitive advantage and keep jobs from going overseas. These seem like incredible numbers: Twice today's efficiency? Output nearly doubled with reduced energy use? The opportunity is so significant because, in spite of efficiency gains over the past decade, plentiful opportunities for energy efficiency remain for industry. The U.S. Department of Energy's 24 industrial assessment centers, which have offered energy audits for more than 30 years, report that energy savings per recommendation increased by 9 percent between 1985 and 2005. Turning our wastefulness into profit is our biggest opportunity to reinvent fire. Dramatic efficiency gains in industry can be enabled by transformations occurring in tandem in other key sectors of our economy. For example, the hugely energy-intensive petroleum refining industry will shrink or eventually disappear as vehicles electrify. But efficiency can be doubled in two main ways: applying new technologies to old sectors, and applying old technologies to new sectors. Adding new technologies to old sectors A well-known success story is the steel industry. Since it recovered from the capacity overhang and devastating mill closures of the 1970s, it has quietly expanded with state-of-the-art facilities. The energy intensity to produce a ton of steel fell 40 percent from 1978 to 2008. This was driven by a new technology well suited to our scrap-rich economy: the share of steel production from electric arc furnaces (EAFs) grew from 25 percent to nearly 60 percent. EAFs recycle steel scrap in an electric furnace to produce new steel, bypassing the energy-intensive, coking coal–powered step of converting iron ore to metallic iron, and then to steel in a conventional blast furnace. Adding EAFs close to scrap sources has also pulled steel recycling rates up to the mid-80 percent range in recent years. Even the conventional route has a more efficient alternative that is starting to make inroads. Steel industry bellwether Nucor recently broke ground on a new direct reduced iron plant in Louisiana. This innovation replaces coal with natural gas in the iron ore conversion step. If the steel industry continues to adopt new technology, it can help lead the transition outlined in Reinventing Fire. Some old industries have less positive stories. Pulp and paper is still struggling with declining demand for its core product, a dynamic that stymies investment in new and existing facilities. Paper mills are often net-zero or even net energy producers, so many would ask: Why bother? But pulping typically produces a potentially valuable by-product—black liquor. Gasifying it has the potential to transform the industry, unlocking the opportunity for the pulp and paper producer of the past to become the biorefinery of the future—producing a portfolio of products alongside paper, from renewable electricity to boutique chemicals and bulk biofuels. A new industrial system could leverage what once was considered waste. In Kalundborg, Denmark, for example, materials and energy flow in a symbiotic dance among a refinery, power plant, pharmaceutical factory, drywall plant and fish farm—transforming waste from one operation into valuable fodder for another, and even supplying heat to the city of Kalundborg and fertilizer to surrounding farms. The flagging paper sector could similarly help lead in reinventing fire, instead of fleeing to countries that grow trees faster than we do. Applying old technologies to new sectors New and growing sectors like the semiconductor industry have a high energy-saving potential despite their modernity. These industries have high investment rates and rebuild their factories often. Therefore, paying attention to energy, reducing waste and improving process designs can pay back many times over as [plants](http://www.scientificamerican.com/topic.cfm?id=plants) are cloned in commonly used "copy exactly" programs. Aggressive, radical efficiency is key. Traditional industry logic is to focus on productivity and yield, not energy. This can create home runs—increased throughput at the same cost—instead of base hits—the same throughput for less capital cost. But with radical efficiency, as yields rise, an efficiency-based approach becomes more powerful and lasting. Even in such yield-centric businesses as chip fabs, the power of the energy lens has now been proved. Texas Instruments (TI) used whole-system, energy-focused design to build a million-square-foot [semiconductor fabrication plant](http://www.youtube.com/watch?v=90gDc7EFMdo&feature=player_embedded#%21) in Richardson, Texas. This facility, which opened in 2009, was the first LEED Gold–rated semiconductor facility. Its innovative design saved $4 million in annual energy operating cost and 35 percent of its [water](http://www.scientificamerican.com/topic.cfm?id=water) use compared with TI's previous chip fab built just four miles away. Thanks to collaboration with RMI's designers, this plant cost $230 million less than the traditional design, and got the same yields; that's why it was built in Texas, not Asia. Data centers are another classic energy-centric, growing industry that lately began to peer through the energy lens, with great benefit. In 2003 RMI released a seminal report on how to slash energy use and capital cost in large data centers. As the industry boomed, a 2007 report to Congress estimated that data centers accounted for 1.5 percent of U.S. electricity use, and that use could double in five years. Now, four years later, data centers account for 2 percent of U.S. electricity use. While demand for computing power continues to grow, industry leaders have increasingly embraced efficiency. They invested in energy-saving server virtualization as well as air-side or water-side economizers to limit chiller operation, and they paid careful attention to layout and hot and cold airflows. These traditional thermal techniques, well known in the buildings sector, formed the basis of a revolution. The biggest and best in the scale data center world measured energy use and competed for the title of "most efficient." Much like the one RMI helped design with EDS (Electronic Data Systems, now part of HP), currently running in Wynyard, England, these data centers use only 5 to 10 percent of their total energy to cool the equipment and power the auxiliary systems. The remaining 90 to 95 percent of the energy powers the IT equipment performing work within the data center. (Therein lies the next big opportunity—a return to the high-tech side of the opportunity.) Unfortunately, those large data centers make up only a small fraction of total data center electricity use. But there's lots of opportunity left to capture: EDS estimated that had the client adopted all of RMI's recommendations, the facility could have saved up to 95 percent of its energy use and about half its capital cost. That's the next frontier for smart designers.

#### That’s k2 the econ

Ettlinger and Gordon 11 – Michael Ettlinger (the Vice President for Economic Policy at the Center for American Progress, former director of the Economic Analysis and Research Network of the Economic Policy Institute) and Kate Gordon (the Vice President for Energy Policy at the Center for American Progress. Most recently, Kate was the co-director of the national Apollo Alliance, where she still serves as senior policy advisor. Former senior associate at the Center on Wisconsin Strategy) April 2011 “The Importance and Promise of American Manufacturing” <http://www.americanprogress.org/issues/2011/04/pdf/manufacturing.pdf>

Manufacturing is critically important to the American economy. For generations, the strength of our country rested on the power of our factory floors—both the machines and the men and women who worked them. We need manufacturing to continue to be a bedrock of strength for generations to come. Manufacturing is woven into the structure of our economy: Its importance goes far beyond what happens behind the factory gates. The strength or weakness of American manufacturing carries implications for the entire economy, our national security, and the well-being of all Americans. Manufacturing today accounts for 12 percent of the U.S. economy and about 11 percent of the private-sector workforce. But its significance is even greater than these numbers would suggest. The direct impact of manufacturing is only a part of the picture. First, jobs in the manufacturing sector are good middle-class jobs for millions of Americans. Those jobs serve an important role, offering economic opportunity to hard-working, middle-skill workers. This creates upward mobility and broadens and strengthens the middle class to the benefit of the entire economy. What’s more, U.S.-based manufacturing underpins a broad range of jobs that are quite different from the usual image of manufacturing. These are higher-skill service jobs that include the accountants, bankers, and lawyers that are associated with any industry, as well as a broad range of other jobs including basic research and technology development, product and process engineering and design, operations and maintenance, transportation, testing, and lab work. Many of these jobs are critical to American technology and innovation leadership. The problem today is this: Many multinational corporations may for a period keep these higher-skill jobs here at home while they move basic manufacturing elsewhere in response to other countries’ subsidies, the search for cheaper labor costs, and the desire for more direct access to overseas markets, but eventually many of these service jobs will follow. When the basic manufacturing leaves, the feedback loop from the manufacturing floor to the rest of a manufacturing operation—a critical element in the innovative process—is eventually broken. To maintain that feedback loop, companies need to move higher-skill jobs to where they do their manufacturing. And with those jobs goes American leadership in technology and innovation. This is why having a critical mass of both manufacturing and associated service jobs in the United States matters. The “industrial commons” that comes from the crossfertilization and engagement of a community of experts in industry, academia, and government is vital to our nation’s economic competitiveness. Manufacturing also is important for the nation’s economic stability. The experience of the Great Recession exemplifies this point. Although manufacturing plunged in 2008 and early 2009 along with the rest of the economy, it is on the rebound today while other key economic sectors, such as construction, still languish. Diversity in the economy is important—and manufacturing is a particularly important part of the mix. Although manufacturing is certainly affected by broader economic events, the sector’s internal diversity—supplying consumer goods as well as industrial goods, serving both domestic and external markets— gives it great potential resiliency. Finally, supplying our own needs through a strong domestic manufacturing sector protects us from international economic and political disruptions. This is most obviously important in the realm of national security, even narrowly defined as matters related to military strength, where the risk of a weak manufacturing capability is obvious. But overreliance on imports and substantial manufacturing trade deficits weaken us in many ways, making us vulnerable to everything from exchange rate fluctuations to trade embargoes to natural disasters.

#### War

Royal 10 – Jedediah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, 2010, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-214

Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defence behaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson's (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as **economic crises could usher in a redistribution of relative power** (see also Gilpin. 1981) that leads to uncertainty about power balances, increasing the risk of miscalculation (Feaver, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner. 1999). Separately, Pollins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland's (1996, 2000) theory of trade expectations suggests that 'future expectation of trade' is a significant variable in understanding economic conditions and security behaviour **of states**. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, **if the expectations of future trade decline**, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases, as states will be inclined to use force to gain access to those resources. Crises could potentially be the **trigger** for **decreased trade expectations** either on its own or because it triggers protectionist moves by interdependent states.4 Third, **others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess** (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn. They write: The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favour. Moreover, the **presence of a recession tends to** amplify the extent **to which international and external conflicts self-reinforce each other**. (Blomberg & Hess, 2002. p. 89) **Economic decline has** also been linked with an increase in the likelihood of terrorism (Blomberg, Hess, & Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. **"**Diversionary theory" suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to fabricate external military conflicts to create a 'rally around the flag' effect. Wang (1996), DeRouen (1995). and Blomberg, Hess, and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997), Miller (1999), and Kisangani and Pickering (2009) suggest that **the tendency towards diversionary tactics are greater for democratic states** than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak Presidential popularity, are statistically linked to an increase in the use of force. In summary, recent economic scholarship positively correlates economic integration with an increase in the frequency of economic crises, whereas **political** science scholarship links economic decline with external conflict at systemic**, dyadic and national levels**.5 This implied connection between integration, crises and armed conflict has not featured prominently in the economic-security debate and deserves more attention.

### 1NC Hegemony f/l

#### SMRs fail—still are vulnerable and cause blackouts

Baker, 6-22-12

[Matthew, American Security Project, “Do Small Modular Reactors Present a Serious Option for the Military’s Energy Needs?” <http://americansecurityproject.org/blog/2012/do-small-modular-reactors-present-a-serious-option-for-the-militarys-energy-needs/>]

The speakers at the DESC briefing suggested a surge is needed in SMR production to combat a major vulnerability in America’s national security: possible attacks to the power grid. Such attacks could cause blackouts for over a year according to Congressman Bartlett, leading to blackouts never before experienced in the United States. In such an event the U.S. military would still need to function 24/7. Current predictions made by the DESC suggest that up to 90% of the US military’s energy needs could be supplied by SMRs.¶ Congressman Bartlett also pointed out that current military bases such as Guam – which is fueled by the transport of diesel – are extremely vulnerable should the energy transport system be disrupted. Fuel supplies are even more unstable in Afghanistan, where one out of every twenty-four convoys results in a casualty. According to Congressman Bartlett, SMRs could make such bases energy self-sufficient.¶ Unfortunately all the hype surrounding SMRs seems to have made the proponents of SMR technology oblivious to some of its huge flaws.¶ Firstly like large reactors, one of the biggest qualms that the public has to nuclear is problems associated with nuclear waste. A more decentralized production of nuclear waste inevitably resulting from an increase in SMRs production was not even discussed. The danger of transporting gas into some military bases in the Middle East is already extremely volatile; dangers of an attack on the transit of nuclear waste would be devastating.¶ Secondly, SMRs pose many of the same problems that regular nuclear facilities face, sometimes to a larger degree. Because SMRs are smaller than conventional reactors and can be installed underground, they can be more difficult to access should an emergency occur. There are also reports that because the upfront costs of nuclear reactors go up as surface area per kilowatt of capacity decreases, SMRs will in fact be more expensive than conventional reactors.¶ Thirdly, some supporters of SMR technology seem to have a skewed opinion of public perception toward nuclear energy. Commissioner of the U.S. Nuclear Regulatory Commission, William C. Ostendorff, didn’t seem to think that the recent Fukushima disaster would have any impact on the development on SMRs. Opinion polls suggest Americans are more likely to think that the costs of nuclear outweigh its benefits since the Fukushima disaster. For SMRs to be the philosopher’s stone of the military’s energy needs the public needs to be on board.¶ The DESC’s briefing did illustrate the hype that the nuclear community has surrounding SMRs, highlighting some pressing issues surrounding the military’s energy vulnerability. But proponents of SMRs need to be more realistic about the flaws associated with SMRs and realize that the negative impacts of nuclear technology are more costly than its benefits.

#### Hegemony doesn’t solve anything

**Preble 10 -** director of foreign policy studies at the Cato Institute, taught history at St. Cloud State University and Temple University, was a commissioned officer in the U.S. Navy, Ph.D. in history from Temple University (Christopher, 8/13, “U.S. Military Power: Preeminence for What Purpose?”) <http://www.cato-at-liberty.org/u-s-military-power-preeminence-for-what-purpose/>)

Most in Washington still embraces the notion that America is, and forever will be, the world’s indispensable nation. Some scholars, however, questioned the logic of hegemonic stability theory from the very beginning. A number continue to do so today. They advance arguments diametrically at odds with the primacist consensus. Trade routes need not be policed by a single dominant power; the international economy is complex and resilient. Supply disruptions are likely to be temporary, and the costs of mitigating their effects should be borne by those who stand to lose — or gain — the most. Islamic extremists are scary, but hardly comparable to the threat posed by a globe-straddling Soviet Union armed with thousands of nuclear weapons. It is frankly absurd that we spend more today to fight Osama bin Laden and his tiny band of murderous thugs than we spent to face down Joseph Stalin and Chairman Mao. Many factors have contributed to the dramatic decline in the number of wars between nation-states; it is unrealistic to expect that a new spasm of global conflict would erupt if the United States were to modestly refocus its efforts, draw down its military power, and call on other countries to play a larger role in their own defense, and in the security of their respective regions. But while there are credible alternatives to the United States serving in its current dual role as world policeman / armed social worker, the foreign policy establishment in Washington has no interest in exploring them. The people here have grown accustomed to living at the center of the earth, and indeed, of the universe. The tangible benefits of all this military spending flow disproportionately to this tiny corner of the United States while the schlubs in fly-over country pick up the tab. In short, we shouldn’t have expected that a group of Washington insiders would seek to overturn the judgments of another group of Washington insiders. A genuinely independent assessment of U.S. military spending, and of the strategy the military is designed to implement, must come from other quarters.

#### There are no threats – regional actors can prevent war

**Bandow 11** – senior fellow at the Cato Institute. A former special assistant to Ronald Reagan, he is the author of Foreign Follies: America's New Global Empire (Xulon) [1-31-2011, Doug Bandow, “Solving the Debt Crisis: A Military Budget for a Republic”, January 31st, <http://www.cato.org/pub_display.php?pub_id=12746>]

More than two decades after the Cold War dramatically ended, the U.S. maintains a Cold War military. America has a couple score allies, dozens of security commitments, hundreds of overseas bases, and hundreds of thousands of troops overseas. Yet international hegemonic communism has disappeared, the Soviet Union has collapsed, Maoist China has been transformed, and pro-communist Third World dictatorships have been discarded in history's dustbin.

The European Union has a larger economy and population than America does. Japan spent decades with the world's second largest economy. South Korea has 40 times the GDP and twice the population of North Korea. As Colin Powell exclaimed in 1991, "I'm running out of demons. I'm running out of enemies. I'm down to Castro and Kim Il-sung."

Yet America accounts for roughly half of the globe's military outlays. In real terms the U.S. government spends more on the military today than at any time during the Cold War, Korean War, or Vietnam War. It is difficult for even a paranoid to concoct a traditional threat to the American homeland.

Terrorism is no replacement for the threat of nuclear holocaust. Commentator Philip Klein worries about "gutting" the military and argued that military cuts at the end of the Cold War "came back to haunt us when Sept. 11 happened." Yet the reductions, which still left America by far the world's most dominant power, neither allowed the attacks nor prevented Washington from responding with two wars.

And responding with two wars turned out to be a catastrophic mistake. Evil terrorism is a threat, but existential threat it is not. Moreover, the best response is not invasions and occupations — as the U.S. has learned at high cost in both Afghanistan and Iraq. Rather, the most effective tools are improved intelligence, Special Forces, international cooperation, and restrained intervention.

Attempts at nation-building are perhaps even more misguided than subsidizing wealthy industrialized states. America's record isn't pretty. The U.S. wasn't able to anoint its preferred Somali warlord as leader of that fractured nation. Washington's allies in the still unofficial and unstable nation of Kosovo committed grievous crimes against Serb, Roma, and other minorities. Haiti remains a failed state after constant U.S. intervention. The invasion of Iraq unleashed mass violence, destroyed the indigenous Christian community, and empowered Iran; despite elections, a liberal society remains unlikely. After nine years most Afghans dislike and distrust the corrupt government created by the U.S. and sustained only by allied arms.

The last resort of those who want America to do everything everywhere is to claim that the world will collapse into various circles of fiery hell without a ubiquitous and vast U.S. military presence. Yet there is no reason to believe that scores of wars are waiting to break out. And America's prosperous and populous allies are capable of promoting peace and stability in their own regions.

#### Plan eliminates oil dependence

Hornitschek 6 **(**Michael J., Air Force Journal of Logistics, “War without oil: catalyst for transformation,” Fall 2006, http://findarticles.com/p/articles/mi\_m0IBO/is\_3\_30/ai\_n18618914/pg\_2?tag=artBody;col1, AMiles)

An uncertain world energy prospect, a vital national defense mission, and the unique organizational capacity and situation of the DoD invites one to ask if an opportunity exists for the DoD to serve as an example for a national transformation toward a new energy future. Based upon the first three elements of Dr John P. Kotter's popular eight-step model for organizational transformation, this article presents a methodology for determining if the DoD can lead an immediate, coherent, and viable long-term strategy toward a vision of replacing petroleum as its primary energy source in order to maintain all necessary strategic and operational capability for US security to 2050 and beyond.

The three-part approach begins in the first section by scoping the dimensions of the American energy security problem to create a sense of urgency. It continues in second section by examining the method in which an assured energy-guiding coalition and a DoD grand energy vision can be formulated within the context of the specific security responsibilities and desired capabilities of the DoD, as well as responsibilities of the DoE. The methodology finishes in the third section by highlighting the process by which a grand strategy can be developed that supports a new DoD energy vision. While there are a multitude of possible and competing DoD energy visions suitable for separate debate, the analysis in this article is accomplished under the structure of a conceptual three-phase hydrogen- and electric-based military transformation strategy that supports a 2050 post-petroleum vision aligned with President Bush's State of the Union goals.

If the above methodology demonstrates a feasible approach for guiding the DoD energy transformation to serve the Department's own requirements, it can then be argued that the lessons learned and knowledge gained from such an endeavor could be applied toward a larger national energy transformation. The DoD-to-civilian transition model has been successfully applied in other major societal changes to include racial integration, sexual equality, and the benefits of networked-based information sharing (Arpanet/ Intemet) to highlight a few. The creation of a broadly supported post-petroleum DoD vision and transformation strategy could not only preserve a relevant military force, but also lead a positive, bipartisan, interagency, and economic demonstration for preserving American security overall.

#### No state has enough control over oil to blackmail or draw the US into conflict

Charles L. Glaser August 2011 Professor of Political Science and International Relations Elliot School of International Affairs The George Washington University “Reframing Energy Security: How Oil Dependence Influences U.S. National Security”

Oil dependence could reduce a state’s security if its access to oil is vulnerable to disruption and if oil is necessary for operating the state’s military forces. Vulnerable energy supplies can leave a state open to coercion—recognizing that it is more likely to lose a war, the state has a weaker bargaining position and is more likely to make concessions. Closely related, if war occurs the state is more likely to lose. Conflict that is influenced by this mechanism is not fundamentally over the oil; rather, when states already have incentives for conflict, the oil vulnerability influences their assessment of military capabilities and in turn the path to war. Recognizing this type of danger during the Cold War, U.S. planning to protect its sea lanes of communication with the Persian Gulf was motivated partly by the importance of insuring the steady flow of oil that was necessary to enable the United States to fight a long war against the Soviet Union in Europe. During the Second World War, Japan’s vulnerability to a U.S. oil embargo played an important role in destroying Japan’s ability to fight. This type of threat to the U.S. military capabilities is not a serious danger today because the United States does not face a major power capable of severely interrupting its access to key supplies of oil. In contrast, China does face this type of danger because its oil imports are vulnerable to disruption by the U.S. Navy.

#### Oil dependence is key to dollar reserve status – that’s key to military supremacy

Daniel Drezner, November 2008; professor of political science at Tufts, “Oil dependence as virtue”; The National Interest. .98 (November-December 2008): p8.

As the strategic and economic value of oil skyrocketed during the first half of this year, many experts declared that the global distribution of power is rapidly shifting to oil exporters--specifically, Russia and the members of the Organization of the Petroleum Exporting Countries (OPEC). This belief has led to a lot of talk about the rise of "authoritarian capitalist" great powers and "the return of history."¶ But let's imagine--as The National Interest asked me to do--that the summer of 2008 turns out to be the all-time peak of oil prices, and that the end of the oil era is imminent. The first instinct is to assume that in this world--a world in which oil would be a minor commodity, irrelevant to both geopolitics and the global economy--America would be much better off. Oil-exporting autocracies would fade into obscurity, and the Middle East would revert to barren sand-strewn lands. This imagined future, after all, is what drives politicians from George W. Bush to Barack Obama to say that ending dependence on foreign oil will liberate America.¶ But would this really be the case? It may be that the assumptions we hold are grounded in a misunderstanding of the global order. Perhaps instead, without oil dominating their economies, the Middle East oil states would be far less dependent on the United States for trade, for security and for dollars. Perhaps the dollar would no longer be the world's reserve currency, which would severely hinder America's ability to fund its current-account deficit--and its military superiority. And then, perhaps, the security guarantee the United States provides to the Middle East--and by extension the entire oil-dependent world--would be null and void.¶ In short, a world that doesn't need oil may also be a world that doesn't need the United States. But when prices of oil are skyrocketing, people aren't thinking about the possible long-term implications of energy independence, only the short-term gains.

#### Offense

#### First, dependence solves mideast resource war

**Miller 10**—assistant professor of political science at the University of Oklahoma (Gregory D., April 2010, © Center for Strategic and International Studies, *The Washington Quarterly* 33:2, “The Security Costs of Energy Independence,” http://www.twq.com/10april/docs/10apr\_Miller.pdf, RBatra)

At the regional level, conflicts between neighboring states would become more likely. Neighbors already make up the bulk of militarized disputes, which are even more common when states must compete for scarce resources. Japan’s expansion for oil prior to World War II is one example, and several conflicts were at least partly about scarce water: Israel and Jordan (1967), Egypt and Ethiopia (1980), and South Africa and Lesotho (1986). **A dramatic decrease in demand would lower the price of oil on the world market, which could lead to severe economic consequences for many oil exporters.** Initially, many consumer states will benefit as they will be able to afford more oil. Oil-exporting states, however, will see profits decline; and **scarcities will become more pronounced, especially in the Middle East.**

Oil has often been a cause of regional conflicts, such as Iraq’s invasion of Kuwait in 1990 or the July 2001 clash between Iran and Azerbaijan over oilbearing zones in the Caspian Sea. So, it is possible that less global demand for oil would decrease the frequency of such situations. As states lose their oil revenue, however, and thus the ability to provide their people the standard of living to which they have grown accustomed, **basic necessities could become catalysts for conflict**. Resources such as food and water are already scarce in many parts of the world, a problem that would be exacerbated for states that lose substantial oil revenues.

#### Second, decreased revenue cause Russian adventurism and nuclear war

**Miller 10**—assistant professor of political science at the University of Oklahoma (Gregory D., April 2010, © Center for Strategic and International Studies, *The Washington Quarterly* 33:2, “The Security Costs of Energy Independence,” http://www.twq.com/10april/docs/10apr\_Miller.pdf, RBatra)

Russia is another potential danger spot because it is the only nuclear state, at least for now, that has significant revenue from the sale of oil, roughly **8—20 percent of its GDP**. Losing that income will have less dramatic effects on Russia than on many OPEC states more heavily reliant on oil sales, at least partly because of recent attempts to diversify the Russian economy. Its economy, however, is still **too fragile to handle a major drop in demand for oil**. Given the existing **tension between Russia and states such as Georgia and Ukraine**, neither the United States nor Russia’s neighbors can afford the risk of **a nuclear Russia** suffering economic instability.19

#### Third, its key to Saudi relations

JadMouawad9-25-2009 New York Times, “Saudi Blasts American Energy Policy”, <http://green.blogs.nytimes.com/2009/08/25/saudi-blasts-american-energy-policy/>

The question of American “energy independence” clearly rankles officials in Saudi Arabia, the world’s biggest exporter of crude oil, who seem increasingly puzzled by the energy policy of the United States, the world’s biggest oil consumer. In a short and strongly-worded essay in Foreign Policy magazine, Prince Turki al-Faisal, a former ambassador to the United States and a nephew to King Abdullah, said that for American politicians, invoking energy independence “is now as essential as baby-kissing,” and accuses them of “demagoguery.” All the talk about energy independence, Mr. al-Faisal said, is “political posturing at its worst — a concept that is unrealistic, misguided, and ultimately harmful to energy-producing and consuming countries alike.” There is no technology on the horizon that can completely replace oil as the fuel for the United States’ massive manufacturing, transportation, and military needs; any future, no matter how wishful, will include a mix of renewable and nonrenewable fuels. Considering this, efforts spent proselytizing about energy independence should instead focus on acknowledging energy interdependence. Like it or not, the fates of the United States and Saudi Arabia are connected and will remain so for decades to come. Relations between the United States and Saudi Arabia date back to the 1930s when American geologists first struck oil in the kingdom. While American companies built the Saudi oil industry, Americans have never shaken off their suspicions and mistrust of the kingdom since the Arab oil embargo of 1973. It’s not the first time a Saudi official has criticized American energy policy, or its growing reliance on renewable fuels. Many of Prince Turki’s arguments recycle Saudi Arabia’s position that for the past 30 years, the oil-rich kingdom has acted in a responsible manner to keep oil markets well supplied. Prince Turki correctly points at the steps taken by Saudi Arabia in recent years to increase its production to make up for lost production in Iraq or elsewhere in times of crisis, and invest close to $100 billion in new capacity over the past five years. On the other hand, he points out that four countries — Iran, Iraq, Nigeria and Venezuela — failed to live up to expectations that they would raise their production over the past decade for a variety of reasons, including “a U.S. invasion” in the case of Iraq. The Saudis have genuine reasons to fear the effects of the Obama administration’s energy policy and its commitment to reducing oil consumption, as well as efforts to reduce carbon emissions. As Prince Turki points out himself, Saudi Arabia holds 25 percent of the world’s known oil reserves and would like to keep selling oil for several more decades. As such, the Saudis know that any attempt to reduce gasoline consumption is a threat to the future of the Saudi economy. It’s an old refrain: in his most famous remark, the former Saudi oil minister, Sheik Yamani, once said that the stone age didn’t end because the world ran out of stones, and the oil age will not end because the world runs out of oil. It will end when something replaces it. The trend has already started. Oil demand in the United States has peaked — instead of rising as it has since the dawn of the age of oil more than a century ago, the nation’s oil consumption has begun its long decline. The question is: how fast will the transition take?

#### **That’s key to a stable pakistan**

Levine 2011 – adjunct professor at the Georgetown University School of Foreign Service, where he teaches energy and security in the Security Studies Program, contributing editor at Foreign Policy (Jan/Feb, Steve, Foreign Policy, “Frenemies forever”, http://www.foreignpolicy.com/articles/2011/01/02/opening\_gambit\_frenemies\_forever?page=0,0, WEA)

Besides, Saudi Arabia isn't just a giant gas station with a flag. Saudi help is now essential for numerous top-shelf U.S. priorities, from containing Iran to countering terrorism to extricating U.S. troops from Afghanistan and keeping Pakistan stable. **Only Saudi Arabia**, with its carefully cultivated, behind-the-scenes links to countries and leaders who do not trust Washington, can play this role.

#### **Nuke war**

Morgan, 10 **–**Labour Party Executive Committee, political writer, author of "The Mind of a Terrorist Fundamentalist - the Cult of Al Qaeda" (Stephen, “Better Another Taliban Afghanistan, than a Taliban NUCLEAR,” 6/4, http://society.ezinemark.com/better-another-taliban-afghanistan-than-a-taliban-nuclear-pakistan-4d0ce18ba75.html)

The nightmare that is now Iraq would take on gothic proportions across the continent. The prophesy of an arc of civil war over Lebanon, Palestine and Iraq would spread to south Asia, stretching from Pakistan to Palestine, through Afghanistan into Iraq and up to the Mediterranean coast. Undoubtedly, this would also spill over into India both with regards to the Muslim community and Kashmir. Border clashes, terrorist attacks, sectarian pogroms and insurgency would break out. A new war, and possibly nuclear war, between Pakistan and India could not be ruled out. Atomic Al Qaeda Should Pakistan break down completely, a Taliban-style government with strong Al Qaeda influence is a real possibility. Such deep chaos would, of course, open a "Pandora's box" for the region and the world. With the possibility of unstable clerical and military fundamentalist elements being in control of the Pakistan nuclear arsenal, not only their use against India, but Israel becomes a possibility, as well as the acquisition of nuclear and other deadly weapons secrets by Al Qaeda. Invading Pakistan would not be an option for America. Therefore a nuclear war would now again become a real strategic possibility. This would bring a shift in the tectonic plates of global relations. It could usher in a new Cold War with China and Russia pitted against the US.

#### Dependence prevents Iran prolif – leverage over future extraction is the biggest bargaining chip

Roger Howard, 11-29-2008; Roger Howard is a writer and broadcaster on international relations. His books include Iran in Crisis? (Zed, 2004), What’s Wrong with Liberal Interventionism (Social Affairs Unit, 2006) and Iran Oil: The New Middle East Challenge to America (IB Tauris, 2006). He has written widely for newspapers and journals ranging from the Daily Mail and Daily Express to the National Interest and the RUSI Journal. “An Ode to Oil” http://online.wsj.com/article/SB122791647562165587.html

The United States has powerful political leverage over producers because it holds the key to future oil supply as well as market demand. The age of "easy oil" is over, and as fears grow that oil is becoming harder to get, so too will the dependency of producers on increasingly sophisticated Western technology and expertise. Such skills will be particularly important in two key areas of oil production. One is finding and extracting offshore deposits, like the massive reserves reckoned to be under the Caspian and Arctic seas, or in Brazil's recently discovered Tupi field. The other is prolonging the lifespan of declining wells through enhanced "tertiary" recovery. Because Western companies have a clear technological edge over their global competitors in these hugely demanding areas, Washington exerts some powerful political leverage over exporters, many of whom openly anticipate the moment when their production peaks before gradually starting to decline. Syria illustrates how this leverage can work. Although oil has been the primary source of national income for more than 40 years, production has recently waned dramatically: Output is now nearly half of the peak it reached in the mid-1990s, when a daily output of 600,000 barrels made up 60% of gross domestic product, and can barely sustain rapidly growing domestic demand fueled by a very high rate of population growth. With enough foreign investment Syrian oil could be much more productive and enduring, but Washington has sent foreign companies, as well as American firms, a tough message to steer well clear. It is not surprising, then, that the Damascus regime regards a rapprochement with the U.S. as a political lifeline and in recent months has shown signs of a new willingness to compromise. The same predicament confronted Libya's Col. Moammar Gadhafi, who first offered to surrender weapons of mass destruction during secret negotiations with U.S. officials in May 1999. Facing a deepening economic crisis that he could not resolve without increasing the production of his main export, oil, Col. Gadhafi was prepared to bow to Washington's demands and eventually struck a path-breaking accord in December 2003. Col. Gadhafi had been the "Mad Dog" of the Reagan years, but oil's influence had initiated what President Bush hailed as "the process of rejoining the community of nations." Oil could also help the outside world frustrate the nuclear ambitions of Iran, whose output is likely to steadily decline over the coming years unless it has access to the latest Western technology. Many wells are aging rapidly and the Iranians cannot improve recovery rates, or exploit their new discoveries, unless Washington lifts sanctions, which have been highly successful in deterring international investment**.**

#### Nuclear war

Uchino Yoshinari 3-26-2011; Faculty of Science, Kyoto University, Iran’s Nuclear Program and U.S. Security Policy http://www.viz.media.kyoto-u.ac.jp/sympo2010/data/Paper\_Collection.pdf#page=47

What if Iran gets nuclear weapons? This section of the paper explores the consequences of Iran going nuclear. First, some of Iran‟s neighbors might follow suit and go nuclear. Several Arab states have nuclear energy programs as hedges against nuclear-armed Iran, as mentioned above. If Iran acquires a nuclear bomb, these states might decide to produce nuclear weapons, although it might be too late. Moreover, Pakistan might provide Saudi Arabia with nuclear weapons, nuclear technology, and a delivery system. Emerging nuclear-armed states might use nuclear weapons, as noted above.[42] Second, some of the Gulf States might appease Tehran. In such a country, Iran might engage in illicit activities, including transferring weapons of mass destruction, support for terrorism, and money laundering. Third, a nuclear war between Israel and Iran might occur. Indeed, Iran might refrain from preemptive strike on Israel because of Israel‟s second-strike capabilities, such as Dolphin-class submarines and SLCMs.[43] Israel might refrain from a first strike for fear of Iran‟s attack by ballistic missiles and proxy warfare with Hezbollah. However, Israel might want to carry out preventive strike before Iran increases its nuclear arsenal. Iran might also launch the first strike before it loses its nuclear weapons, as discussed by Edelman, Krepinevich, and Montgomery.[44] Fourth, Iran would conduct frequent provocative actions, including support for terrorist groups, such as Hezbollah and Hamas, subversive activities in Sunni Arab states, and deliberate near-misses toward the U.S. ships in the Persian Gulf. Fifth, allies of the United States, as well as Iran, China, and North Korea, would question the extended deterrence policy. Would Washington risk the homeland to protect Israel, Saudi Arabia, and the UAE? The best way to solve these conundrums is to prevent Iran from crossing the nuclear threshold.

#### Oil revenue is key to prevent terrorism – declines in wealth are more likely to produce conflict

Gregory D. Miller, April 2010; assistant professor of political science at the University of Oklahoma, “The Security Costs of Energy Independence”, the Washington Quarterly April 2010 http://csis.org/files/publication/twq10aprilmiller.pdf

Although internal violence, including terrorism, is often believed to be born out of¶ economic hardship, the number of terrorists coming from Kuwait is greater than¶ the number from Niger. 6 This suggests that some level of wealth is necessary for¶ violence to occur; bomb-making requires some education, and ammunition costs¶ money. The most dangerous situations appear to be when individuals have wealth,¶ but then lose what they have or fear they are about to, therefore engaging in¶ violence out of dissatisfaction. For example, Professor Scott Atran shows that¶ suicide terrorists are not poor or lacking in opportunities, but that relative loss of¶ economic or social advantage by educated persons might encourage support for¶ terrorism.7 If true, current oil-exporting states are particularly susceptible to¶ internal violence as a result of this relative deprivation. Several of these states¶ already suffer from internal problems because of social divisions, but these issues¶ will grow as national wealth declines, making governments less capable of dealing¶ with unrest either by providing social programs or through intimidation. Even in¶ states where the majority of the population does not directly profit from the sale of¶ oil, many people still benefit from oil wealth, such as better roads, more¶ educational opportunities, and more advanced technology. Even relatively small¶ cuts in revenue will negatively affect those populations.¶ Similarly, just as resource scarcity is a catalyst for interstate conflict, economic¶ problems stemming from a lack of necessary resources also lead to internal¶ violence, as illustrated in Sierra Leone in the early 1990s and Indonesia in 1997.8¶ These same types of conflicts would increase in frequency within states that are¶ somewhat stable now, only because oil provides them with a relatively satisfied¶ population and because it gives governments the means to crack down on those¶ who would engage in violence.

**Extinction**

**Ayson 10 -** Robert, Professor of Strategic Studies and Director of the Centre for Strategic Studies: New Zealand at the Victoria University of Wellington, (“After a Terrorist Nuclear Attack: Envisaging Catalytic Effects,” *Studies in Conflict & Terrorism*, Volume 33, Issue 7, July, Available Online to Subscribing Institutions via InformaWorld)

A terrorist nuclear attack, and even the use of nuclear weapons in response by the country attacked in the first place, would not necessarily represent the worst of the nuclear worlds imaginable. Indeed, there are reasons to wonder whether nuclear terrorism should ever be regarded as belonging in the category of truly existential threats. A contrast can be drawn here with the global catastrophe that would come from a massive nuclear exchange between two or more of the sovereign states that possess these weapons in significant numbers. Even the worst terrorism that the twenty-first century might bring would fade into insignificance alongside considerations of what a general nuclear war would have wrought in the Cold War period. And it must be admitted that as long as the major nuclear weapons states have hundreds and even thousands of nuclear weapons at their disposal, there is always the possibility of a truly awful nuclear exchange taking place precipitated entirely by state possessors themselves. But these two nuclear worlds—a non-state actor nuclear attack and a catastrophic interstate nuclear exchange—are not necessarily separable. It is just possible that some sort of terrorist attack, and especially an act of nuclear terrorism, could precipitate a chain of events leading to a massive exchange of nuclear weapons between two or more of the states that possess them. In this context, today’s and tomorrow’s terrorist groups might assume the place allotted during the early Cold War years to new state possessors of small nuclear arsenals who were seen as raising the risks of a catalytic nuclear war between the superpowers started by third parties. These risks were considered in the late 1950s and early 1960s as concerns grew about nuclear proliferation, the so-called n+1 problem. It may require a considerable amount of imagination to depict an especially plausible situation where an act of nuclear terrorism could lead to such a massive inter-state nuclear war. For example, in the event of a terrorist nuclear attack on the United States, it might well be wondered just how Russia and/or China could plausibly be brought into the picture, not least because they seem unlikely to be fingered as the most obvious state sponsors or encouragers of terrorist groups. They would seem far too responsible to be involved in supporting that sort of terrorist behavior that could just as easily threaten them as well. Some possibilities, however remote, do suggest themselves. For example, how might the United States react if it was thought or discovered that the fissile material used in the act of nuclear terrorism had come from Russian stocks,40 and if for some reason Moscow denied any responsibility for nuclear laxity? The correct attribution of that nuclear material to a particular country might not be a case of science fiction given the observation by Michael May et al. that while the debris resulting from a nuclear explosion would be “spread over a wide area in tiny fragments, its radioactivity makes it detectable, identifiable and collectable, and a wealth of information can be obtained from its analysis: the efficiency of the explosion, the materials used and, most important … some indication of where the nuclear material came from.”41 Alternatively, if the act of nuclear terrorism came as a complete surprise, and American officials refused to believe that a terrorist group was fully responsible (or responsible at all) suspicion would shift immediately to state possessors. Ruling out Western ally countries like the United Kingdom and France, and probably Israel and India as well, authorities in Washington would be left with a very short list consisting of North Korea, perhaps Iran if its program continues, and possibly Pakistan. But at what stage would Russia and China be definitely ruled out in this high stakes game of nuclear Cluedo? In particular, if the act of nuclear terrorism occurred against a backdrop of existing tension in Washington’s relations with Russia and/or China, and at a time when threats had already been traded between these major powers, would officials and political leaders not be tempted to assume the worst? Of course, the chances of this occurring would only seem to increase if the United States was already involved in some sort of limited armed conflict with Russia and/or China, or if they were confronting each other from a distance in a proxy war, as unlikely as these developments may seem at the present time. The reverse might well apply too: should a nuclear terrorist attack occur in Russia or China during a period of heightened tension or even limited conflict with the United States, could Moscow and Beijing resist the pressures that might rise domestically to consider the United States as a possible perpetrator or encourager of the attack? Washington’s early response to a terrorist nuclear attack on its own soil might also raise the possibility of an unwanted (and nuclear aided) confrontation with Russia and/or China. For example, in the noise and confusion during the immediate aftermath of the terrorist nuclear attack, the U.S. president might be expected to place the country’s armed forces, including its nuclear arsenal, on a higher stage of alert. In such a tense environment, when careful planning runs up against the friction of reality, it is just possible that Moscow and/or China might mistakenly read this as a sign of U.S. intentions to use force (and possibly nuclear force) against them. In that situation, the temptations to preempt such actions might grow, although it must be admitted that any preemption would probably still meet with a devastating response. As part of its initial response to the act of nuclear terrorism (as discussed earlier) Washington might decide to order a significant conventional (or nuclear) retaliatory or disarming attack against the leadership of the terrorist group and/or states seen to support that group. Depending on the identity and especially the location of these targets, Russia and/or China might interpret such action as being far too close for their comfort, and potentially as an infringement on their spheres of influence and even on their sovereignty. One far-fetched but perhaps not impossible scenario might stem from a judgment in Washington that some of the main aiders and abetters of the terrorist action resided somewhere such as Chechnya, perhaps in connection with what Allison claims is the “Chechen insurgents’ … long-standing interest in all things nuclear.”42 American pressure on that part of the world would almost certainly raise alarms in Moscow that might require a degree of advanced consultation from Washington that the latter found itself unable or unwilling to provide. There is also the question of how other nuclear-armed states respond to the act of nuclear terrorism on another member of that special club. It could reasonably be expected that following a nuclear terrorist attack on the United States, both Russia and China would extend immediate sympathy and support to Washington and would work alongside the United States in the Security Council. But there is just a chance, albeit a slim one, where the support of Russia and/or China is less automatic in some cases than in others. For example, what would happen if the United States wished to discuss its right to retaliate against groups based in their territory? If, for some reason, Washington found the responses of Russia and China deeply underwhelming, (neither “for us or against us”) might it also suspect that they secretly were in cahoots with the group, increasing (again perhaps ever so slightly) the chances of a major exchange. If the terrorist group had some connections to groups in Russia and China, or existed in areas of the world over which Russia and China held sway, and if Washington felt that Moscow or Beijing were placing a curiously modest level of pressure on them, what conclusions might it then draw about their culpability? If Washington decided to use, or decided to threaten the use of, nuclear weapons, the responses of Russia and China would be crucial to the chances of avoiding a more serious nuclear exchange. They might surmise, for example, that while the act of nuclear terrorism was especially heinous and demanded a strong response, the response simply had to remain below the nuclear threshold. It would be one thing for a non-state actor to have broken the nuclear use taboo, but an entirely different thing for a state actor, and indeed the leading state in the international system, to do so. If Russia and China felt sufficiently strongly about that prospect, there is then the question of what options would lie open to them to dissuade the United States from such action: and as has been seen over the last several decades, the central dissuader of the use of nuclear weapons by states has been the threat of nuclear retaliation. If some readers find this simply too fanciful, and perhaps even offensive to contemplate, it may be informative to reverse the tables. Russia, which possesses an arsenal of thousands of nuclear warheads and that has been one of the two most important trustees of the non-use taboo, is subjected to an attack of nuclear terrorism. In response, Moscow places its nuclear forces very visibly on a higher state of alert and declares that it is considering the use of nuclear retaliation against the group and any of its state supporters. How would Washington view such a possibility? Would it really be keen to support Russia’s use of nuclear weapons, including outside Russia’s traditional sphere of influence? And if not, which seems quite plausible, what options would Washington have to communicate that displeasure? If China had been the victim of the nuclear terrorism and seemed likely to retaliate in kind, would the United States and Russia be happy to sit back and let this occur? In the charged atmosphere immediately after a nuclear terrorist attack, how would the attacked country respond to pressure from other major nuclear powers not to respond in kind? The phrase “how dare they tell us what to do” immediately springs to mind. Some might even go so far as to interpret this concern as a tacit form of sympathy or support for the terrorists. This might not help the chances of nuclear restraint.