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#### Plan: The United States Federal Government should substantially increase commercial loan guarantees to develop and deploy Power Reactor Innovative Small Module reactors for the purpose of energy production in the United States.

### ADVANTAGE 1

Is Russian Security

#### Dealing with waste is inevitable in the squo

George Monbiot, 12-5-2011, is a writer, known for his environmental and political activism, writes a weekly column for The Guardian, and is the author of a number of books, The Guardian, “A Waste of Waste,” <http://www.monbiot.com/2011/12/05/a-waste-of-waste/>

The temptation, when a great mistake has been made, is to seek ever more desperate excuses to sustain the mistake, rather than admit the terrible consequences of what you have done. But now, in the UK at least, we have an opportunity to make amends. Our movement can abandon this drivel with a clear conscience, for the technology I am about to describe ticks all the green boxes: reduce, reuse, recycle. Let me begin with the context. Like other countries suffering from the idiotic short-termism of the early nuclear power industry, the UK faces a massive bill for the storage and disposal of radioactive waste. The same goes for the waste produced by nuclear weapons manufacturing. But is this really waste, or could we see it another way? In his book Prescription for the Planet, the environmentalist Tom Blees explains the remarkable potential of integral fast reactors (IFRs) (11). These are nuclear power stations which can run on what old nuclear plants have left behind. Conventional nuclear power uses just 0.6% of the energy contained in the uranium that fuels it. Integral fast reactors can use almost all the rest. There is already enough nuclear waste on earth to meet the world’s energy needs for several hundred years, with scarcely any carbon emissions. IFRs need be loaded with fissile material just once. From then on they can keep recycling it, extracting ever more of its energy, until a small fraction of the waste remains. Its components have half-lives of tens rather than millions of years. This makes them more dangerous, but much easier to manage in the long term. When the hot waste has been used up, the IFRs can be loaded with depleted uranium (U-238), of which the world has a massive stockpile (12).The material being reprocessed never leaves the site: it remains within a sealed and remotely-operated recycling plant. Anyone trying to remove it would quickly die. By ensuring the fissile products are unusable, the IFR process reduces the risk of weapons proliferation. The plant operates at scarcely more than atmospheric pressure, so it can’t blow its top. Better still, it could melt down only by breaking the laws of physics. If the fuel pins begin to overheat, their expansion stops the fission reaction. If, like the Fukushima plant, an IFR loses its power supply, it simply shuts down, without human agency. Running on waste, with fewer pumps and valves than conventional plants, they are also likely to be a good deal cheaper (13).So there’s just one remaining question: where are they? In 1994 the Democrats in the US Congress, led by John Kerry, making assertions as misleading as the Swift Boat campaign that was later deployed against him(14), shut down the research programme at Argonne National Laboratories that had been running successfully for 30 years. Even Hazel O’Leary, the former fossil fuel lobbyist charged by the Clinton administration with killing it, admitted that “no further testing” is required to prove its feasibility (15).But there’s a better demonstration that it’s good to go: last week GE Hitachi (GEH) told the British government that it could build a fast reactor within five years to use up the waste plutonium at Sellafield, and if it doesn’t work, the UK won’t have to pay (16). A fast reactor has been running in Russia for 30 years (17) and similar plants are now being built in China and India (18, 19). GEH’s proposed PRISM reactor uses the same generating technology as the IFR, though the current proposal doesn’t include the full reprocessing plant. It should. If the government does not accept GEH’s offer, it will, as the energy department revealed on Thursday, handle the waste through mixed oxide processing (mox) instead (20). This will produce a fuel hardly anyone wants, while generating more waste plutonium than we possess already. It will raise the total energy the industry harvests from 0.6% to 0.8% (21). So we environmentalists have a choice. We can’t wish the waste away. Either it is stored and then buried. Or it is turned into mox fuels. Or it is used to power IFRs. The decision is being made at the moment, and we should determine where we stand. I suggest we take the radical step of using science, not superstition, as our guide.

#### GNEP/IFNEC is faltering – key to securing fissile material

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

The International Framework for Nuclear Energy Cooperation (IFNEC), formerly the Global Nuclear Energy Partnership (GNEP), aims to accelerate the development and deployment of advanced nuclear fuel cycle technologies while providing greater disincentives to the proliferation of nuclear weapons. GNEP was initiated by the USA early in 2006, but picked up on concerns and proposals from the International Atomic Energy Agency (IAEA) and Russia. The vision was for a global network of nuclear fuel cycle facilities all under IAEA control or at least supervision. Domestically in the USA, the Global Nuclear Energy Partnership (GNEP) was based on the Advanced Fuel Cycle Initiative (AFCI), and while GNEP faltered with the advent of the Barack Obama administration in Washington from 2008, the AFCI is being funded at higher levels than before for R&D "on proliferation-resistant fuel cycles and waste reduction strategies." Two significant new elements in the strategy are new reprocessing technologies which separate all transuranic elements together (and not plutonium on its own), and advanced burner (fast) reactors to consume the result of this while generating power. GNEP was set up as both a research and technology development initiative and an international policy initiative. It addresses the questions of how to use sensitive technologies responsibly in a way that protects global security, and also how to manage and recycle wastes more effectively and securely. The USA had a policy in place since 1977 which ruled out reprocessing used fuel, on non-proliferation grounds. Under GNEP, reprocessing is to be a means of avoiding proliferation, as well as addressing problems concerning high-level wastes. Accordingly, the US Department of Energy set out to develop advanced fuel cycle technologies on a commercial scale. As more countries consider nuclear power, it is important that they develop the infrastructure capabilities necessary for such an undertaking. As with GNEP, IFNEC partners are working with the IAEA to provide guidance for assessing countries' infrastructure needs and for helping to meet those needs. For countries that have no existing nuclear power infrastructure, IFNEC partners can share knowledge and experience to enable developing countries to make informed policy decisions on whether, when, and how to pursue nuclear power without any need to establish sensitive fuel cycle facilities themselves. With the USA taking a lower profile in GNEP from 2009, the partners are focused on collaboration to make nuclear energy more widely accessible in accordance with safety, security and non-proliferation objectives, as an effective measure to counter global warming, and to improve global energy security. A change of name to International Framework for Nuclear Energy Cooperation was adopted in June 2010, along with a new draft vision statement, which read: "The Framework provides a forum for cooperation among participating states to explore mutually beneficial approaches to ensure the use of nuclear energy for peaceful purposes proceeds in a manner that is efficient, safe, secure, and supports non-proliferation and safeguards." By some accounts, this envisages "cradle to grave" fuel management as central, along with assurance of fuel supply. IFNEC agenda Broadly, IFNEC's mission is the global expansion of nuclear power in a safe and secure manner. A major rationale is reducing the threat of proliferation of nuclear materials and the spread of sensitive nuclear technology for non-peaceful purposes. With greater use of nuclear energy worldwide the possibility of the spread of nuclear material and technology for the development of weapons of mass destruction must be countered to avoid increasing the present threat to global security. A second issue addressed by IFNEC is the efficiency of the current nuclear fuel cycle. The USA, the largest producer of nuclear power, has employed a 'once through' fuel cycle. This practice only uses a part of the potential energy in the fuel, while effectively wasting substantial amounts of useable energy that could be tapped through recycling. The remaining fissionable material can be used to create additional power, rather than treating it as waste requiring long-term storage. Others, notably Europe and Japan, recover the residual uranium and plutonium from the used fuel to recycle at least the plutonium in light water reactors. However, no-one has yet employed a comprehensive technology that includes full actinidea recycle. In the USA, this question is pressing since significant amounts of used nuclear fuel are stored in different locations around the country awaiting shipment to a planned geological repository which was to be at Yucca Mountain in Nevada. This project is delayed, and in any case will fill very rapidly if it is used simply for used fuel rather than the separated wastes after reprocessing it. IFNEC also aims to address cost issues associated with the development and expansion of nuclear power in developing countries. Nuclear programs require a high degree of technical and industrial expertise. This is a serious obstacle for emerging countries attempting to develop nuclear power, although efforts are underway to increase the number of indigenously-trained nuclear experts through a variety of education and training initiatives. Internationally, the countries identified by the US Department of Energy (DOE) as likely participants at both enrichment and recycling ends are the USA, UK, France, Russia and Japan. The USA and Japan agreed to develop a nuclear energy cooperation plan centered on GNEP and the construction of new nuclear power plants. (Japan also intended to participate in the DOE's FutureGen clean coal project, which was abandoned but may possibly be revived.) Several bilateral agreements centered on GNEP/IFNEC have been developed. IFNEC parties and rationale At the first ministerial meeting in May 2007, the USA, China, France, Japan and Russia became formally the founding members of GNEP. Four of the five are nuclear weapons states and have developed full fuel cycle facilities arising from that; the non-nuclear weapons state, Japan, has developed similar facilities to support its extensive nuclear power program. To date, 31 nationsb are participants in IFNEC. Most of these signed the GNEP Statement of Principles1, which established broad guidelines for participation and incorporates seven objectives that touch on each element of GNEP. Under GNEP, so-called 'fuel cycle nations' would provide assured supplies of enriched nuclear fuel to client nations, which would generate electricity before returning the used fuel. The used fuel would then undergo advanced reprocessing so that the uranium and plutonium it contained, plus long-lived minor actinides, could be recycled in advanced nuclear power reactors. Waste volumes and radiological longevity would be greatly reduced by this process, and the wastes would end up either in the fuel cycle or user countries. Nuclear materials would never be outside the strictest controls, overseen by the IAEA. Two sensitive processes in particular would not need to be employed in most countries: enrichment and reprocessing. The limitation on these, by commercial dissuasion rather than outright prohibition, is at the heart of GNEP strategy. A corollary of this dissuasion is that GNEP/IFNEC member nations would be assured of reliable and economic fuel supply under some IAEA arrangement yet to be specified. GNEP/IFNEC work plan The GNEP members set up two principal working groups: The reliable nuclear fuel services working group (RNFS WG) is addressing nuclear fuel leasing and other considerations around comprehensive nuclear fuel supply goals, and includes evaluation of back-end fuel cycle options. The nuclear infrastructure development working group (ID WG) is addressing human resource development, radioactive waste management, small modular reactors, financing options, engagement with specialist organizations and identifying infrastructure requirements for an international nuclear fuel services framework enabling nuclear power deployment in many countries. An early priority was seen to be the development of new reprocessing technologies to enable recycling of most of the used fuel. One of the concerns when reprocessing used nuclear fuel is ensuring that separated fissile material is not used to create a weapon. One chemical reprocessing technology – PUREX – has been employed for over half a century, having been developed in wartime for military use (see page on Processing of Used Nuclear Fuel). This has resulted in the accumulation of 240 tonnes of separated reactor-grade plutonium around the world (though some has been used in the fabrication of mixed oxide fuel). While this is not suitable for weapons use, it is still regarded as a proliferation concern. New reprocessing technologies are designed to combine the plutonium with some uranium and possibly with minor actinides (neptunium, americium and curium), rendering it impractical to use the plutonium in the manufacture of weapons. GNEP/IFNEC creates a framework where states that currently employ reprocessing technologies can collaborate to design and deploy advanced separations and fuel fabrication techniques that do not result in the accumulation of separated pure plutonium. Several developments of PUREX which fit the GNEP/IFNEC concept are being trialled: NUEX separates uranium and then all transuranics (including plutonium) together, with fission products separately (USA). UREX+ separates uranium and then either all transuranics together or simply neptunium with the plutonium, with fission products separately (USA). COEX separates uranium and plutonium (and possibly neptunium) together as well as a pure uranium stream, leaving other minor actinides with the fission products. A variation of this separates americium and curium from the fission products (France). GANEX separates uranium and plutonium as in COEX, then separates the minor actinides plus some lanthanides from the short-lived fission products (France). The central feature of all these variants is to keep the plutonium either with some uranium or with other transuranics which can be destroyed by burning in a fast neutron reactor – the plutonium being the main fuel constituent. Trials of some fuels arising from UREX+ reprocessing in USA are being undertaken in the French Phenix fast reactor. An associated need is to develop the required fuel fabrication plant. That for plutonium with only some uranium and neptunium is relatively straightforward and similar to today's MOX fuel fabrication plants. A plant for fuel including americium and curium would be more complex (due to americium being volatile and curium a neutron emitter). The second main technological development originally envisaged under GNEP is the advanced recycling reactor – basically a fast reactor capable of burning minor actinides. Thus used fuel from light water reactors would be transported to a recycling centre, where it would be reprocessed and the transuranic product (including plutonium) transferred to a fast reactor on site. This reactor, which would destroy the actinides, would have a power capacity of perhaps 1000 MWe. The areas of development for fast reactor technology centre on the need for fast reactors to be cost competitive with current light water reactors. Countries such as France, Russia and Japan have experience in the design and operation of fast reactors and the USA is working with them to accelerate the development of advanced fast reactors that are cost competitive, incorporate advanced safeguards features, and are efficient and reliable. The advent of such fast reactors would mean that reprocessing technology could and should step from the aqueous processes derived from PUREX described above to electrometallurgical processes in a molten salt bath. Separating the actinides then is by electrodeposition on a cathode, without chemical separation of heavy elements as occurs in the Purex and related processes. This cathode product can then be used in a fast reactor, since it is not sensitive to small amounts of impurities. GE Hitachi Nuclear Energy (GEH) is developing this 'Advanced Recycling Center' concept which combines electrometallurgical separation and burning the final product in one or more of its PRISM fast reactors on the same site.2 The separation process would remove uranium, which is recycled to light water reactors; then fission products, which are waste; and finally the actinides including plutonium. With respect to the ultimate disposition of nuclear waste from recycling, three options exist conceptually: User responsibility. The radioactive wastes from the nuclear fuel recycling centre could be considered as processed waste belonging to the user nation that sent its used nuclear fuel to the recycling centre. These wastes might then be shipped back to that user nation for final disposal. Supplier responsibility. The nation hosting the recycling centre might retain the waste or, if a different supplier nation had manufactured the original fuel, all wastes arising from the original fuel could be considered the responsibility of that fuel supplier nation. Third-party responsibility. A disposal facility might be sited in a country that is, in particular cases, neither the supplier nor the user, but is using its technological capability and geological suitability to manage the safe delivery of a commercially and environmentally valuable service. The IFNEC program is considering the ownership and final disposal of waste, but this discussion has not yet reached beyond the preliminary stages. The second and third conceptual options for waste disposal would require one or more international radioactive waste final disposal facilities (see page on International Nuclear Waste Disposal Concepts), and serious discussion of those options will begin only when nations enter into real consideration of the sensitive issue of the hosting of such facilities. In 2012 the RNFS WG is working on a paper entitled ‘Comprehensive Fuel Services: Strategies for the Back End of the Fuel Cycle’ to pursue agreement on the basis for international cooperation on repositories and reprocessing for these activities to be commercialised. Finally, IFNEC is concerned to foster the development of 'grid-appropriate reactors', i.e. smaller units (perhaps 50-350 MWe) for electricity grids of up to 3 GWe. These should incorporate advanced features including safety, simplicity of operation, long-life fuel loads, intrinsic proliferation-resistance and security3. In January 2007, the US Department of Energy (DOE) announced a new strategic plan for GNEP initiatives, including preparation of an environmental impact statement. It would assess three facilities: a fuel recycling centre including reprocessing and fuel fabrication plants; a fast reactor to burn the actinide-based fuel and transmute transuranic elements; and an advanced fuel cycle research facility. The DOE envisaged the first two being industry-led initiatives. In October 2007, the DOE awarded $16 million to four industry consortia for GNEP-related studies. The largest share of this, $5.6 million, went to the International Nuclear Recycling Alliance (INRA) led by Areva and including Mitsubishi Heavy Industries (MHI), Japan Nuclear Fuel Ltd (JNFL), Battelle, BWX Technologies and Washington Group International. INRA was contracted to provide three major studies: technology development roadmaps analyzing the technology needed to achieve GNEP goals; business plans for the development and commercialization of the advanced GNEP technologies and facilities; and conceptual design studies for the fuel recycling centre and advanced recycling reactor. Areva and JNFL are focused on the Consolidated Fuel Treatment Center, a reprocessing plant (which will not separate pure plutonium), and MHI on the Advanced Recycling Reactor, a fast reactor which will burn actinides with uranium and plutonium. These are the two main technological innovations involved with GNEP. In this connection MHI has also set up Mitsubishi FBR Systems (MFBR). INRA appears to have materialized out of a September 2007 agreement between Areva and JNFL to collaborate on reprocessing. Its contract with the DOE was extended in April 2008. A significant setback for the US leadership of GNEP was related to funding by Congress. For FY 2007 the program – including some specifically US aspects – had $167 million, and for FY 2008 Congress cut it back to $120 million, severely constraining the fuel cycle developments. For FY 2009, GNEP did not receive any funding although $120 million was allocated to the Advanced Fuel Cycle Initiative (AFCI), which funds research into reprocessing technologies. The funding for AFCI was only about 40% of the amount requested by the administration. Thus in the USA, GNEP has been largely reduced to an R&D program on advanced fuel cycle technologies. In June 2009, the DOE cancelled the programmatic environmental impact statement for GNEP "because it is no longer pursuing domestic commercial reprocessing, which was the primary focus of the prior Administration's domestic GNEP program."4 Outcomes of IFNEC Under any scenario, the USA and others will require waste repositories; however, recycling used fuel will greatly reduce the amount of waste destined for disposal. For the planned US repository at Yucca Mountain in Nevada, the reprocessing-recycling approach with burning of actinides and perhaps also some long-lived fission products would mean that the effective capacity of such a repository would be increased by a factor of 50 or more. This is due to decreased radiotoxicity and heat loads, as well as reducing greatly the ultimate volume of waste requiring disposal. IFNEC envisages the development of comprehensive fuel services, including such options as fuel leasing, to begin addressing the challenges of reliable fuel supply while maximizing non-proliferation benefits. The establishment of comprehensive and reliable fuel services, including used fuel disposition options, will create a more practical approach to nuclear power for nations seeking its benefits without the need to establish indigenous fuel cycle facilities. It is through enabling such a comprehensive framework that IFNEC will possibly make its primary contribution to reducing proliferation risk.

#### The plan would cause quick U.S.-Russia PRISM commercialization and fissile material oversight.

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

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

#### Russian nuclear security is a joke spent nuclear fuel is highly vulnerable to terrorist theft – cited means and motivation.

Stephen Menesick, Summer 2011, Political Science and Peace, War and Defense, public policy analysis, Unviersity of Chapel Hill, Global Security Studies, Vol. 2 Issue 3, “ Preventing the Unthinkable: An Overview of Threats, Risks, and US Policy Response to Nuclear Terrorism,” p. 5-6, <http://globalsecuritystudies.com/Menesick%20Nuclear%20Final.pdf>

The outlook in Russia is bleaker. After the Cold War, many Russian nuclear weapons were extremely vulnerable—left nearly unsecured across the country. Since then, the Russian government has made a considerable effort to strengthen security and upgrade technology that guards nuclear weapons and material (Bunn, 2006). However, significant risks still remain. Because of the sheer quantity of weapons in Russia, and the difficulty of managing such a large number of weapons, external risks of outright theft are always a concern. Reports by Russian officials have confirmed that terrorists have conducted intelligence gathering operations on Russian stockpiles, and to date, it is the only country where documentation of terrorist surveillance exists (Bunn 2010, 35). Equipping all sites with state of the art security measures has been a difficult challenge. The Russian government, and consequently the security contractors who are responsible for the upkeep of these facilities, suffers from a lack of financial resources (Joyner & Parkhouse 2009, 215). Additionally, significant internal threats are present. Because the government employs independent security companies to coordinate much of management of nuclear materials, there are two channels for insiders to aid terrorist groups—high level government officials and low level technical personnel. Both groups have incentive to divulge information at the right price, and Russia has a political environment that has been rife with corruption for decades (Bunn 2010, 32-33 and Joyner & Parkhouse 2009, 216). Finally, there is the security risk of Highly Enriched Uranium-fueled reactors (HEU’s). Because of its chemical composition and refinement, HEU can be used easily to make crude nuclear weapons even by non-experts (Norwegian Project Secretariat). Because of the ease with which a weapon can be made out of HEU, it is easy to see why terrorist acquisition is a direct security risk. As of 2009, about half of the 200 remaining reactors were still using HEU fuel, and do not have capability to be converted to lower enriched uranium (LEU) (World Nuclear Association 2011). Most of these are in Russia, where the government has invested little in research to convert their own reactors to LEU power or other alternatives (World Nuclear Association 2011). Further, and most alarming, is that the security at many of these HEU sites is inadequate to prevent theft of HEU, making research reactors a prime target for terrorists seeking to obtain nuclear material (Bunn, 2010, 45). If a terrorist group only acquires nuclear material, and not a functional weapon, they will have to successfully create a weapon that they can detonate. Unfortunately, this is an achievable end that can be done with little resources or expertise. As discussed above, Highly Enriched Uranium is pure enough that it can be made into a devastating weapon relatively easily, and it is also the most likely nuclear material that terrorists would get their hands on. The perception of modern nuclear weapons may be that they are highly technical instruments of warfare backed by complex science. While this may be true, a “crude” nuclear weapon, one that takes little skill to create, would still be incredibly deadly—capable of destroying the downtown of a major city (Bunn, 2010, 16). The process of building a weapon of this type is not entirely simple, and anyone who wanted to construct such a device would need a technical team with at least some experience. However, in comparison to the nuclear weapons manufactured today, a crude bomb would be a more feasible project, as it would not have to comply with rigorous military and safety specifications. Thus, it is plausible to see that this kind of power is not out of reach for dedicated terrorist groups, should they acquire nuclear material (Ferguson & Potter 2003, 116). Having acquired nuclear material and created a weapon, the final obstacle a terrorist group would need to pass would be delivery and detonation in the target location. Likely, this would involve them smuggling a bomb or device into the United States, and then into a major city, undetected. Nuclear material is quite difficult to track, especially the small amounts that would be needed for a crude weapon (Bunn 2010, 18). Journalists have repeatedly demonstrated the ease with which radioactive materials can be transported and shielded from detection while traveling (Ferguson & Potter 2003, 141). Even with the most advanced technology, HEU is among the most difficult kind of radiological material to detect (Montgomery 2009, 79). Also, terrorists could use existing port and transport systems in place, as they are relatively unsecure. Customs and Border Patrol inspects only around 6% of cargo containers entering the US (Medalia 2005). Even with increased security measures and Port Authority reorganization in 2003, there are still plausible scenarios for terrorist groups sneaking radioactive materials into the US via boat undetected (Ferguson & Potter 2003, 300). Furthermore, terrorists could avoid this obstacle entirely by taking materials that were already inside the US. Once inside the US, delivery and detonation to target site would also not be insurmountable. As Matthew Bunn and E. P. Maslin write: The length of national borders, the diversity of means of transport, the vast scale of legitimate traffic across borders, and the ease of shielding the radiation from plutonium or especially from HEU all operate in favor of the terrorists. Building the overall system of legal infrastructure, intelligence, law enforcement, border and customs forces, and radiation detectors needed to find and recover stolen nuclear weapons or materials, or to interdict these as they crossnational borders, is an extraordinarily difficult challenge. (Bun & Maslin 2010) In order for a terrorist group to be “successful” in carrying out a nuclear attack, many elements must come together. There is no doubt that the end result of a nuclear terrorist attack would be terrible, so even with a low probability of attack, the high impact possibility means steps should still be taken to prevent it. In each link of the chain of attack, there are security measures that have been put in place, and continue to be upgraded. However, as discussed above, there are still vulnerabilities in each step of the process that, if they all were orchestrated together, terrorists could exploit to pull off an attack with a nuclear weapon. The most critical of these links is acquisition of a bomb or nuclear material, because it is the only one that truly prevents an attack from occurring. Once a terrorist group has nuclear material, they can find people willing to make it into a usable weapon if they cannot themselves.

#### Causes retaliation and global nuclear war – only the plan solves.

Patrick F. Speice, Jr., Feburary 2006, is an associate in Gibson, Dunn & Crutcher's Washington, D.C. office, works in the firm’s International Trade Regulation and Compliance Department, focusing on export controls, foreign regulations, and economic sanctions, earned his J.D. in 2006 from the Marshall-Wythe School of Law at the College of William & Mary, William and Mary Research Fellowpolitical science, Wake Forest University, authored or co-authored professional articles, includes representation of clients in Foreign Corrupt Practices matters and securities investigations, “Negligence and Nuclear Nonproliferation,” William & Mary Law Review, Lexis Nexis

Accordingly, there is a significant and ever-present risk that terrorists could acquire a nuclear device or fissile material from Russia as a result of the confluence of Russian economic decline and the end of stringent Soviet-era nuclear security measures. 39 Terrorist groups could acquire a nuclear weapon by a number of methods, including "steal[ing] one intact from the stockpile of a country possessing such weapons, or ... [being] sold or given one by [\*1438] such a country, or [buying or stealing] one from another subnational group that had obtained it in one of these ways." 40 Equally threatening, however, is the risk that terrorists will steal or purchase fissile material and construct a nuclear device on their own. Very little material is necessary to construct a highly destructive nuclear weapon. 41 Although nuclear devices are extraordinarily complex, the technical barriers to constructing a workable weapon are not significant. 42 Moreover, the sheer number of methods that could be used to deliver a nuclear device into the United States makes it incredibly likely that terrorists could successfully employ a nuclear weapon once it was built. 43 Accordingly, supply-side controls that are aimed at preventing terrorists from acquiring nuclear material in the first place are the most effective means of countering the risk of nuclear terrorism. 44 Moreover, the end of the Cold War eliminated the rationale for maintaining a large military-industrial complex in Russia, and the nuclear cities were closed. 45 This resulted in at least 35,000 nuclear scientists becoming unemployed in an economy that was collapsing. 46 Although the economy has stabilized somewhat, there [\*1439] are still at least 20,000 former scientists who are unemployed or underpaid and who are too young to retire, 47 raising the chilling prospect that these scientists will be tempted to sell their nuclear knowledge, or steal nuclear material to sell, to states or terrorist organizations with nuclear ambitions. 48 The potential consequences of the unchecked spread of nuclear knowledge and material to terrorist groups that seek to cause mass destruction in the United States are truly horrifying. A terrorist attack with a nuclear weapon would be devastating in terms of immediate human and economic losses. 49 Moreover, there would be immense political pressure in the United States to discover the perpetrators and retaliate with nuclear weapons, massively increasing the number of casualties and potentially triggering a full-scale nuclear conflict. 50 In addition to the threat posed by terrorists, leakage of nuclear knowledge and material from Russia will reduce the barriers that states with nuclear ambitions face and may trigger widespread proliferation of nuclear weapons. 51 This proliferation will increase the risk of nuclear attacks against the United States [\*1440] or its allies by hostile states, 52 as well as increase the likelihood that regional conflicts will draw in the United States and escalate to the use of nuclear weapons. 53

#### By itself terrorism causes extinction.

Owen B. Toon, 4-19-2007, is professor of Atmospheric and Oceanic Sciences and a fellow at the Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado received his Ph.D. from Cornell University, in cloud physics, atmospheric chemistry and radiative transfer, “Atmospheric effects and societal consequences of regional scale nuclear conﬂicts and acts of individual nuclear terrorism,” Atmosphere Chemistry Physics

To an increasing extent, people are congregating in the world’s great urban centers, creating megacities with popula- tions exceeding 10 million individuals. At the same time, ad- vanced technology has designed nuclear explosives of such small size they can be easily transported in a car, small plane or boat to the heart of a city. We demonstrate here that a sin- gle detonation in the 15 kiloton range can produce urban fa- talities approaching one million in some cases, and casualties exceeding one million. Thousands of small weapons still ex- ist in the arsenals of the U.S. and Russia, and there are at least six other countries with substantial nuclear weapons invento- ries. In all, thirty-three countries control sufficient amounts of highly enriched uranium or plutonium to assemble nuclear explosives. A conflict between any of these countries involv- ing 50-100 weapons with yields of 15kt has the potential to create fatalities rivaling those of the Second World War. Moreover, even a single surface nuclear explosion, or an air burst in rainy conditions, in a city center is likely to cause the entire metropolitan area to be abandoned at least for decades owing to infrastructure damage and radioactive contamina- tion. As the aftermath of hurricane Katrina in Louisiana sug- gests, the economic consequences of even a localized nuclear catastrophe would most likely have severe national and inter- national economic consequences. Striking effects result even from relatively small nuclear attacks because low yield det- onations are most effective against city centers where busi- ness and social activity as well as population are concen- trated. Rogue nations and terrorists would be most likely to strike there. Accordingly, an organized attack on the www.atmos-chem-phys.net/7/1973/2007/ Atmos. Chem. Phys., 7, 1973–2002, 2007 Page 28 2000 O. B. Toon et al.: Consequences of regional scale nuclear conflicts U.S. by a small nuclear state, or terrorists supported by such a state, could generate casualties comparable to those once predicted for a full-scale nuclear “counterforce” exchange in a superpower conflict. Remarkably, the estimated quantities of smoke generated by attacks totaling about one megaton of nuclear explosives could lead to significant global climate perturbations (Robock et al., 2007). While we did not ex- tend our casualty and damage predictions to include poten- tial medical, social or economic impacts following the initial explosions, such analyses have been performed in the past for large-scale nuclear war scenarios (Harwell and Hutchin- son, 1985). Such a study should be carried out as well for the present scenarios and physical outcomes.

### Advantage 2

Is Peak Energy

#### Peak energy is coming – extinction

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 82, Amazon.com

All in all, carbon and hydrocarbon availability will also certainly peak and diminish in the next twenty-five years or so. Populations and energy demand will, on the other hand, continue to increase, exponentially if the past is a guide. All the “alternative energy” sources, as defined by environmental groups, with some possible but limited exception in bio-fuels, will come to nothing on the scale of energy replacement required. Physical limitations guarantee this. Nuclear energy has no such physical limitations. Its predicted role, however, remains marginal in all accepted mainstream predictions of future energy supplies. Again, the reasons are obvious, and directly attributable to the successful anti-nuclear campaigns of organized environmental groups. The only result of this path, unaltered, is increasing shortage of energy—life-changing draconian. A perusal of the current literature will demonstrate that this kind of future is looked upon with equanimity, even with enthusiasm, by those who push “alternative energies.” It is a utopian recipe for global disaster. And it will not happen. Civilizations, nations, will do their best to maintain their energy supplies and do whatever is necessary. The most realistic, and peaceful, avenue is plentiful electricity supplied by nuclear power. It will not substitute directly for all other forms of energy. But it will provide limitless electrical power. Electricity is very adaptable, and if you have it abundantly a lot of substitution can be done. A great deal of nuclear capacity will be required. Military might is not required. Attention is. Comfortable views of nuclear power as a small element of the global energy picture are common enough. The recent report, “Nuclear Power Joint Fact-Finding” by the Keystone Center [5], is an excellent example of this. In essence, they extrapolate the situation today, where nuclear energy is a useful but small contributor to U.S. energy overall, and surveying the present state of the nuclear industry in the U.S., conclude that there will be difficulty in maintaining even this. There is no evidence of any alarm at this. The important, the all-important point, is evaded completely: the carbon-based energy system that we have relied upon completely for our nation’s well-being is now endangered. This is not to happen far out in the future; masked somewhat by the recession, it is happening now. Real additions of large magnitude to energy supplies are absolutely essential. The alternative is conflict—military action, if history is any guide, as nations fight for energy resources; or pushed further, some scenario of the doomsayers whose theme is the inevitability of the collapse of civilization. The situation is serious, and it is made more serious by the fact that it is not generally recognized as such and little of use is being done. And if nuclear power is to fill the role that must be assigned to it, the IFR or something very similar is needed. In any event, the principle reactor type must possess breeding characteristics very similar to the IFR. We will turn now to the apparent facts and the evidence underpinning them, and then go on to our principal purpose and the subject of this book, the technical features of the IFR itself. But first, we will examine further the evidence for its need.

#### Decrease in fossil fuel imports hasn’t changed our energy vulnerabilities – without a new energy paradigm coming price shocks will cause hollowing out of the economy and war.

Gal Luft & Anne Korin, July/August 2012, co-directors of the Institute for the Analysis of Global Security (IAGS) and senior advisers to the United States Energy Security Council, They are co-authors of Turning Oil into Salt: Energy Independence through Fuel Choice and Petropoly: The Collapse of America’s Energy Security Paradigm, The American Interest, “The Folly of Energy Independence,” <http://www.the-american-interest.com/article.cfm?piece=1266>

In recent years America’s volume of imported oil has dropped significantly even as the price we have paid and are still paying for it has sharply increased. It follows, then, that the policy options we ought to consider differ significantly from those of the past half century. Yet there seems to be something seriously the matter with our mental clutch. We’re stuck in the wrong gear, and we’re not getting anywhere. That needs to change, now. Up to Speed To understand more fully what the problem is and what we need to do about it, consider that in recent years America’s energy landscape has turned a corner—not thanks to, but largely despite, the actions of the U.S. government. U.S. net imports of petroleum declined from 12.5 million barrels per day (mbd) in 2005 to 8.6 mbd in 2011. U.S. import dependence dropped from its 60 percent peak in 2005 to 46 percent, the level it was back in 1995. This 30 percent reduction in just seven years in the level of imports is equivalent to three times the number of barrels nominally imported from Saudi Arabia. Some of the reduction is due to a recession-induced drop in consumption; some has to do with increased vehicle fuel efficiency standards; some with a ramp up in ethanol blending; and some with a ramp up in domestic oil production. Since 2008, technologies like deep-water drilling, hydraulic fracturing and horizontal drilling have increased U.S. crude oil output by 18 percent. In the past year alone, the U.S. onshore rig count has grown by 30 percent. About a million barrels per day emerged from a new source, tight oil, which is extracted from dense rocks. North Dakota, the center of the tight oil transformation, has become the fourth largest oil-producing state behind Texas, Alaska and California. For the first time in decades, the United States is experiencing an oil boom—or at least a boomlet. But while America’s oil imports dropped, its foreign oil expenditures climbed by almost 50 percent, from $247 billion in 2005 to $367 billion in 2011. The share of oil imports in the overall trade deficit grew from 32 percent in 2005 to 58 percent in 2011. The price of a gallon of regular gasoline nearly doubled. Despite lower demand, U.S. drivers spent more last year on gasoline than in any prior year. Clearly, and surprisingly to those trapped in old ways of thinking, the volume of U.S. imports and the cost of those imports have moved in opposite directions. While America became more self-sufficient and more fuel-efficient, it became poorer and got deeper in debt. If one accepts the traditional mantra of energy security as “availability of sufficient supply at affordable prices”, then whatever points we gained on the availability front were offset by those lost on the affordability side of the ledger. The latter matters more—especially in a time of economic adversity. All but two of the post-World War II recessions were preceded by a sharp spike in oil prices; there is no question that the fivefold increase in oil prices since 2003 has contributed to the current economic dislocation. For perspective, forty years ago, at the zenith of the Cold War, the United States spent $4 billion on oil imports, an amount that equaled 1.2 percent of the defense budget. In 2006, the United States paid $296 billion, equal to half of the defense budget. By 2008, U.S. foreign oil expenditures grew so much they almost equaled the entire defense budget. The energy security paradox of the 21st century, then, is that a country can reduce oil imports but end up paying a much higher oil import bill. What this means is that, given the current state of the global economy, a new oil shock—whether caused by war in the Persian Gulf, instability in North Africa or Nigeria, or even anxious investors rushing to buy oil futures to hedge against falling currencies—would sink Western economies. As it is, the rising cost of oil is hollowing out the U.S. economy, and no fuel economy standards or new oil discovery will stop this tide. What is needed is a new energy paradigm.

#### We could start building hundreds of reactors by 2015 – cost competitive option.

Steve Kirsch, 2011, M.S. Massachusetts Institute of Technology (MIT), writer for the Huffington Post, CEO Kirsch foundation on climate, founder/head of Center for Energy and Climate Change, National Award from the Caring Institute in Washington DC, written much about the Integral Fast Reactor, Fellow, with the Science Council for Global Initiatives (SCGI), Steve Kirsch’s blog, “The Integral Fast Reactor (IFR) project: Q&A,” <http://skirsch.com/politics/globalwarming/ifrQandA.htm>

\*\*\*cites Charles Till, former Associate Director, Argonne National Laboratory, The National Academy Studies, James Hansen, Director, NASA Goddard Institute for Space Studies, Ray Hunter, former Deputy Director of the Office of Nuclear Energy, Science and Technology in the U.S. Department of Energy (DOE), Leonard Koch, winner of the Global Energy International Prize, Barry Brook Sir Hubert Wilkins Chair of Climate Change\*\*\*

I do not agree that nuclear energy would be "a costly option," especially given a level playing field (external health and environmental costs considered, for instance). Nuclear power is now competitive in many countries, and there is no reason to think that fast reactors, in the long run, will be significantly more expensive. They will require no mining, no milling, no enrichment, and the waste-management expense will be negligible. The raw material for the fuel (used fuel already on hand) is essentially free. Virtually the entire cost will be in infrastructure and operations. It's likely if we made this a national priority, it could move a lot faster (like we did with the Manhattan Project). The argument that it might take a long time is an argument for starting immediately. Nobody, even the critics, have suggested that waiting around makes it happen faster when we finally need to do it. We need to get out from under a "let's just pursue the quick fixes" mentality we have now. The time to do these longer term projects is before they are needed. Are we going to wait for our existing nuclear material to be depleted before it is a crisis? And then, once again, we will be too late. We need forward, visionary thinking in this country. It seems to be in short supply. Here's what Blees wrote in response to my answer above: I couldn't agree more. That said, I'm certain it could be done expeditiously and we could start building these things by the hundreds by 2015 or so. Meanwhile we could start building ABWRs and the other Gen III+ reactors so we could start shutting down coal plants. Nuclear waste is simply not an issue. And in terms of building both Gen III and IFRs in nuclear-capable countries, neither is economics. Or safety. Or proliferation. Those who maintain that we don't have the technology are either ignorant of the facts or lying. Not to put too fine a point on it or anything. That's not something I'd just toss out there, but just between you and me that's the way I see it.

#### Global economic crisis causes war - strong statistical support - also causes great power transitions.

Jedediah Royal, 2010, Director of Cooperative Threat Reduction at the U.S. Department of Defense, “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. 213-14

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 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, 10981) that leads to uncertainty about power balances, increasing the risk of miscalculation (Fearon, 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). Seperately, Polllins (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 behavior 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 expectation 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. 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 create a ‘rally round 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 Kisanganie 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.

#### Pyro-processing could solve our energy needs and the economy – four times global oil reserves and the multiplier effect.

Joseph Shuster, 9-8-2011, Ph.D. University of Minnesota, is a chemical engineer, who has spent his entire career in engineering in energy-related issues, he co-founded Minnesota Valley Engineering, founded or co-founded seven other technology based companies and has served on the Board of Directors of over twenty international firms, accurately predicted the oil embargo of 1973 in an energy report he wrote for the U.S. Congress, Response to Draft Report From Obama’s Blue Ribbon Commission (BRC) on America’s Nuclear Future, “Most Commissioners Were Not Qualified,” p. 2, <http://www.beyondfossilfools.com/assets/files/BRCresponse.pdf>

Fixing America’s energy problems over the next 30 years would add approximately 2% per year to the country’s GDP. The multiplier effect could raise this to as much as 10%-- jobs galore. This prospect should have excited politicians and bureaucratic on the commission. Few major initiatives promise such a robust return. Of course, the most important benefits would be abundant clean energy to support the economies of the world and for our children a clean and healthy environment and energy security. An Unbelievable Omission As an alternative to long term storage (300,000Yrs.) of so-called nuclear “waste”, the commission should have presented the alternative of recycling this “waste” along with all the advantages recycling provides. They chose to ignore this elegant technology, but we won’t. Let’s take a look. So-called nuclear “waste” is not really a waste: The energy value that can be recovered from the U.S. stockpile of approximately 62,000 tons of nuclear waste and 600,000 tons of depleted uranium is equivalent to 4.5 trillion barrels of oil. That is 4 times the known global oil reserves. This vast source of carbon free energy can be unlocked from this waste with technologies that were successfully developed in our own U.S. National Laboratories over a 30 year period at a cost of more than $3 billion dollars. The technologies referenced are Generation IV Integral Fast Reactors (IFRs) and the pyroprocessing of nuclear waste which reduces the volume of waste and provides fuel for use in IFRs. When the original waste produced from today’s Light Water Reactors (LWRs) is recycled and burned in IFRs the volume of waste is reduced by 95%, and needs to be stored for only 300 years instead of 300,000 years required today. Another advantage is that through the recycling process and the use of IFRs, more than 100 times more energy is extracted from the original uranium fuel. Abundant information regarding recycling nuclear waste and IFRs was provided by me and others to the commission. It is difficult to understand why full consideration was not given to these important, advanced technologies. This may be the result of simply unqualified individuals being on the commission.

#### Conversion to borocars will happen immediately – PRISM fuel is key

Tom Blees, 2008, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, Prescription for the Planet, p. 165

Already five years ago oxygen extractors were almost small enough, even with their efficiency being barely 5% of the theoretical limit. Give that challenge to the wizards at Sandia Labs and sit back and watch the fur fly. We’ll be tooling around in borocars in a heartbeat. On the other hand, there are a lot of new electric car technologies on the horizon that seem to show great promise, from the aforementioned Phoenix to high-tech capacitor systems. And work being done on so-called flow batteries holds out the possibility of being able to simply pump out discharged electrolytes and pump in a fully charged solution, which wouldn’t take much longer than fueling up with gasoline today. It’s possible that by the time this book is in your hands a viable electric car will be on the road. What 165 use for boron then? Well, you still have that home in Winnipeg, remember? And long trips in remote areas could be impossible with all-electric vehicles, though for most uses they would be just peachy. The average car trip in America is about 29 miles, so usually it would work just fine to plug in at home. If Phoenix Motorcars actually succeeds in building a car with long range per charge and a ten minute charge cycle as they’re promising, admittedly the need for boron will be minimized. Nevertheless it could well be used in trucks, trains, heavy equipment, portable generators, or for safely and cheaply transporting energy in areas (such as much of the developing world) where power grids are inadequate or nonexistent. Our Winnipeg family could get by just fine with an electric car, though, as long as they kept a boron powered generator out in the garage. A boron/electric hybrid, however, would be the best of both worlds. Not only would you have terrific range even beyond the grid, but the charging cable that plugs into your house every night (assuming we make these plug-in hybrids) could operate in reverse if the power went out. All you’d have to do is start the car to kick in the boron power. Of course with a truly efficient boron/electric hybrid you might drive around with a tank of boron for months before ever having occasion to use it. Would that be a bad thing? Absolutely not. From an efficiency standpoint it would be the best situation. Any time energy is converted from one form to another it incurs an energy penalty. So it would be more efficient just to use electricity straight from the IFR to charge up our cars. Dependable boron/electric hybrids would mean only that we’d need fewer boron recycling plants, saving both money (especially the high capital cost) and energy.

#### Fossil fuel production by powerhouses like Saudi Arabia are falling the status quo – no other substitutes because of the size of U.S. imports, this means nuclear is the only option.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 87-8, Amazon.com

The giant oil fields are found first. Because of this, there have been few such discoveries since 1980 even with improvements in exploration. A few have been found in deep water in the Gulf of Mexico, Brazil and West Africa, and in the Caspian Sea, but very, very few compared to the discoveries up to the 1960s. The giants the world has depended on for decades are all either proven to be in decline or are thought to be approaching it. Eighty percent of the world’s oil comes from fields over twenty-five years old. Oil production today outweighs new discoveries by a large factor, quoted variously as between three and nine. The one super-giant, the Ghawar field in Saudi Arabia, alone produces over four million barrels a day. It too is old. The sustainability of tis present production is the subject of much debate, but there is good reason to believe that it may be approaching, or is actually in decline. There is nothing remotely like it to replace it. The other three fields that make up the four responsible for 10 percent of the world’s production, in addition to Ghawar, are Burgan in Kuwait, which supplies about two million bbl/day, and Canterell in Mexico and Daqing in China, both of which supply about one million bbl/day. None are thought to be capable of increases, and all are either suspected to be, or have actually proven to be, in decline. Liquids associated with natural gas, add some production, and the relatively small remainder is “non-conventional oil.” Non-conventional oil is high cost, from hostile locations, deep water, or from heavy oils, tars and bitumens. The resource base of the latter is large—bigger than for conventional oils. But the massive scale of recovery operations, limitations due to environmental concerns (both direct damage during extraction and broader greenhouse issues), and the smaller net energy difference between the product and the production operation, make these sources far inferior to the flows from the giants. They will be important during, and after, conventional oil production declines, but the production rate inevitably will be limited. There is some thought that the very large resources of shale oil will be developed under a high priced scenario. One thing is clear: production rates will be very limited, and the resource amounts are large. So if shale oil production is feasible there will be a very long, but ultimately limited supply of oil to augment other more ample sources of energy. This oil picture is troubling. The bare facts are enough to raise concern. The magnitude of our oil use, two thirds of which is imported, makes energy independence for the U.S. impossible. Domestic fossil fuels have been abundant and cheap historically in the U.S. and many other countries, have provided all the energy of every kind that this nation needed, and have fueled what has been the world’s most vibrant economy. In recent decades, increasing shortfalls in domestic energy production have been masked by increasing imports of oil, and also, to a degree, of natural gas from Canada. Oil imports have become immense. Much is made at the moment of the need for off-shore drilling, and of “alternative energies” deriving from the sun each day. In the routine of politics it’s said that policy changes regarding one or the other, but not both, will bring renewed energy independence for this country. It can be said flatly and with complete certainty that the magnitude of our oil imports makes this impossible. Our oil imports alone are fully one sixth of the total oil production of the entire world. No discoveries off-shore can substantially offset such amounts, nor can all the sun-based alternatives that could in any way possibly be marshaled. Present energy supply practices cannot be sustained indefinitely. There is nothing in prospect to replace energy imports of these magnitudes, nothing that can begin to match magnitudes of this kind. The view that things will continue much as always, with plentiful energy fueling the American economy, must confront facts that appear to tell a much different story. U.S. oil imports are a substantial fraction of all oil on the world’s market. If the very magnitude of the amount of fossil fuels consumed today is the most important fact, it is followed closely by the dramatic changes in the distributions of production and consumption of oil and natural gas. Oil production in the U.S. peaked four decades ago. At that time the U.S. produced a quarter of the world’s oil and was close to self-sufficient. U.S. production has steadily declined since; it is now less than ten percent of world production. The Alaskan field added a temporary “bump” to the decline, but it too is now in steep decline. Imports have increased to the point where the U.S. alone imports a third of all the oil available on the world’s markets after indigenous usage in the producing states is taken out. With world economies growing, fueled by oil, it is not hard to see trouble ahead—world oil production cannot increase apace. Recent rises and market volatility in oil and gasoline prices begin to suggest what lies ahead.

#### Nuclear power is the most economic source of base-load power - displaces fossil-fuel combustion while remaining competitive.

Alexander DeVolpi, 2-28-2010, been active in nuclear-arms policy and treaty-verification technology studies for over 25 years, Argonne National Laboratory, Argonne, Illinois (and other national laboratories) involved nearly 40 years of lab, field, and analytical activities in instrumentation, nuclear physics, nuclear engineering, reactor safety, radioisotopes, experiments, verification technology, and arms control, the Defense Nuclear Agency, On-Site Inspection Agency, all the Department of Energy weapons labs, with the Departments of Defense and State, author or coauthor of several books, Ph.D. in physics (and MS in nuclear engineering physics) from Virginia Polytechnic Institute, certificate from the Argonne International Institute of Nuclear Science and Engineering, managing nuclear diagnostics for the Reactor Analysis and Safety Division at Argonne, and becoming technical manager of the arms-control and nonproliferation program, Who’s Who in Frontiers of Science and Technology, American Men and Women of Science, fellow of the American Physical Society, technical consultant in the Federation of American Scientists/Natural Resources Defense Council joint project, ScienceTechnologyHistory, “NUCLEAR EXPERTISE: The Amory Lovins Charade,” <http://sciencetechnologyhistory.wordpress.com/article/nuclear-expertise-the-amory-lovins-1gsyt5k142kc5-20/>

Moreover, if Lovins had his way, we would not have conserved the electricity-equivalent in domestic coal, imported and domestic oil, and domestic and imported natural-gas resources and reserves that we have for 30 years. A typical nuclear power plant each year avoids consumption of 3.4 million short tons of coal, or 65.8 billion cubic feet of natural gas, or 14 billion barrels of oil. (The United States has ample uranium resources.) So Lovins was wrong in implying that nuclear had no overriding societal or environmental benefits. Incidentally, it’s no accident that Illinois has the highest concentration of nuclear-power plants in the United States: Argonne National Laboratory can be proud of its half-century nuclear stewardship. (California, by the way, generates more electricity from geothermal, solar, and wind energy sources combined than any other State.) Lovins displayed complex viewgraphs that, he purports, show that nuclear is the costliest of “low-or-non-nuclear resources.” Yet, in the last 30 years, nuclear has displaced half the fossil-fuel combustion in Illinois while still being competitive. Inasmuch as nuclear-power plants emit no byproduct carbon-dioxide to the atmosphere, surely his claim that it is the costliest of low-carbon-emission sources fails the smell test. Most of Lovins’ pricing and cost/benefit comparisons are based on “new delivered electricity” which frames the cost of U.S. domestic nuclear construction in the least favorable light. He declares nuclear power an economic failure. Can someone explain that to my bank account which has benefitted from compounding competitive electric power savings for the past 30 years? His rimy claim certainly fails the ripeness test. On the issue of electrical-grid reliability, Lovins asserts that there is no such thing as a “outage-free” source of electrical power. He must think that nuclear power runs by government fiat. Nuclear is a fixture on the grid because it is more economical to operate as base-load supply, while sources less reliable, intermittent, and more costly (such as wind, solar, and gas) provide supplementary power. During the past 30 years in Illinois, I don’t recall having the electricity supply and cost problems that California has had after it prohibited nuclear-power plants from being built within its borders. By the way, average U.S. nuclear capacity factor was about 92% in 2007. That’s excellent. Lovins pitiful effort to undermine the reliability of nuclear power egregiously fails the smell test.

#### Natural gas won’t serve as a bridge for a renewables transition – price shocks and link to peak oil.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 89, Amazon.com

Natural gas is linked to oil. It has been suggested that a “natural gas bridge” is possible when oil production falls, “bridging” the gap between oil scarcity and some new non-fossil source of energy, typically wind or sun. Peak gas, however, is linked to peak oil in a fundamental way. World gas supplies, even today, are not assured, and will decline, loosely linked to oil. Demand projections for world electricity forecast annual growth rates approaching 9 percent or so; all assume, either explicitly or implicitly, that “abundant and cheap,” as well as “environmentally friendly” natural gas will take increasing load. No practical credence can be given to suggestions that wind farms or other new, dilute, and variable “alternative energy sources” will make a meaningful contribution. Without cheap gas, the “gas bridge” to “alternative energy sources” will make a meaningful contribution. Without cheap gas, the “gas bridge” to “alternative energy sources” collapses. The other end of the “bridge” exists in imagination only. Most U.S. gas comes from gas-only fields, although worldwide it is produced principally where oil is found. Gas is found in three types of formation: associated gas, the gas occurring in associated oil fields; non-associated gas, the dry gas from conventional gas fields with identifiable boundaries; and unconventional, continuous gas fields in tight formations, coal bed gas, and shale. The first two have discrete boundaries, high permeability, and consequent high recoveries. Unconventional gas fields have more diffuse boundaries, low permeability, and consequently low (and consequently more expensive) recoveries.

#### Energy competition is likely – predictions by consensus of knowledgeable institutions and observers.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 97, Amazon.com

Soon the world’s energy need will no longer be dominated by the western world. By 2030 China will have passed the U.S. in energy consumption. Oil production at best will have long since reached a plateau. Severe competition for imports of oil can be expected, as the two biggest users of oil are the two biggest importers and the two most powerful nations on earth. Electricity growth will be very robust; electricity will near 50% of total primary energy usage. Nuclear is assigned only a small part in most prognostications, non-trivial, but small and constant. But note carefully: for these predictions to be explainable, all growth had to be assigned to coal and natural gas. The scenarios foreseen by a number of knowledgeable institutions and observers regarding peak production rates are quite similar. There is disagreement on the dates of the various peaks, but with a surprising degree of agreement considering the disparate interests of those involved. The graph below shows the main points. It is taken from the Association for the Study of Peak Oil (ASPO) 2006 Base Case Scenario. [13-14] Here they show that global production of conventional oil peaked in 2006, while all liquids (including non-conventional oil) and natural gas combined will peak in approximately 2010. The combined peak of oil and gas will probably determine the peak—at least the first peak—in total world energy production and consumption.

#### Coal will peak soon because of extraction problems and resource distribution.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 91, Amazon.com

Coal outlook is the least well-defined. Although coal is mined on every continent except Antarctica, it is by no means distributed uniformly. The biggest deposits are in the U.S. and Russia, with China, India and Australia following in that order. The US has 27% of the world’s coal, and coal is always thought of as our fuel of last resort. The principal point about coal, however, is that the amounts that will actually be recoverable worldwide are very poorly defined and technology dependent. The resource amounts themselves are poorly defined, some of the numbers date back to the 1970s when the first global estimates were made. Further, for coal particularly, the resource numbers are deceiving. The amount of coal that be recovered is certainly only a fraction of the resource in the ground. Current guesses are that coal production will peak globally in the range between 2025 and 2050, based solely on physical constraints. If constraints due to CO2 emissions begin to seriously enter the picture, the place of coal will be limited to an even greater degree. Carbon-based fuel will soon become increasingly unavailable. All in all, it seems evident that carbon and hydrocarbon availability will peak and diminish in the next very few decades—within the next twenty-five years, and possibly sooner. With this in prospect, it is difficult to understand the complacency with which the stagnation of nuclear power in this country continues to be accepted. Real, practical additions at magnitude must be made, and soon. Yet little is being done.

#### No form of energy except for PRISMS can displace fossil fuels – failure to start switching now means worse crunch in the long-run.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 99, Amazon.com

Tar sands and oil shale recovery are constrained by shortages of gas and water for processing. The rates of extraction will always be limited. Biofuels have low net energy gains (and so require vast areas to be devoted to biomass crops) and require substantial quantities of fresh water. Other renewables, which now produce only tiny amounts of energy—solar, wind, tidal, wave, and geothermal—have some potential for increase; however, there is no credible scenario in which these could grow enough to offset projected declines in any one of the three principal fossil fuels much less all three together. The ten quads each year must come from nuclear expansion. It is routinely and airily stated that expansion of nuclear power is problematic given future constraints in the availability of uranium. Properly managed, with the right reactor deployment, this statement is completely false. Cost issues are always brought up by opponents who have, through their campaigns, sought to drive the costs up. This issue is a red herring as well—the costs of nuclear plants are in keeping with other construction, and they pay off in reliable electricity over the many decade lifetime of the nuclear plant. The findings of the 2005 DOE-funded Hirsch report [15] regarding society’s vulnerability to peak oil apply also to peak coal: time will be needed in order for society to adapt proactively to a resource-constrained environment. A failure to begin now to reduce reliance on coal will mean much greater economic hardship when the peak arrives. World fossil energy will begin to decline very soon, and there is no perfect substitute. The climate modelers and anti-nuclear activists will always point to policies with mandatory energy curtailment and societal adjustment to lower consumption levels. Policies such as these impact everything—agriculture, transport, trade, urban design, and national electrical grid systems—and everything dependent on them, including global telecommunications. Substitution of nuclear for fossil fuels is perfect for electricity. For transportation, agriculture, and other motive usages it is not—but electricity is energy and energy can be used in any number of innovative ways. No energy is no option. Will America willingly return to the simple agrarian ways dreamed by many in the environmental movement? This idea is influential in thinking today, while all forms of energy at least in this country are abundant, but will it withstand real scarcity? An America willingly retreating into the Middle Ages for lack of energy, while China builds itself in to an industrial powerhouse. Does this seem even remotely likely? Those who project with apparent satisfaction very limited nuclear power for America while all depleting resources show an increasing inability to sustain their historical role often have real political influence. They must face these facts. Will they?

#### Consensus on peak oil now – new data from oil insiders that we’ve reached the production tipping point.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 88-9, Amazon.com

Two very different views of the world’s future oil production have challenged each other in the last decade or so, but may be coalescing somewhat at present. The so-called “economist’s view” of oil production is that oil prices increase, the amount of oil produced will rise to meet future demand. Typically forecasts are based on this assumption, resulting in forecasts of continued production growth, with no end in sight. At the other extreme is the “peak oil” view, held by a number of oil exploration geologists, but by no means all of them, that the world’s total endowment is now well enough known that a peak in world oil production can now be foreseen; once we’re there, like the peak in U.S. domestic production in 1970, decline is inevitable and irreversible. An excellent summary was recently provided by Campbell, founder of the Association for the Study of Peak Oil and Gas (ASPO) and a very experienced oil exploration geologist. [6] The IEA chief economist, Faith Birol, has recently been quoted at length to this effect [4] and IEA projections moved toward this view for the first time in World Energy Outlook 2008. [7] There is consensus now on “conventional oil” production: it’s now at its highpoint. It’s not often stated this way, but there now seems to be broad agreement that production of “conventional oil,” the free flowing “light sweet” crude that is easy and cheap to recover, has probably reached its peak level worldwide. This is a truly startling development. It is new and it has grave implications. “Peak oil” theorists used to be routinely ridiculed, but the fact is that increasing numbers of oil industry insiders, at the highest levels, are now also saying the same thing: the point of maximum production is approaching. Their comments attribute the peak to a variety of factors, but the fundamental point is an approaching inability to meet current demand growth. In this principal fact that they are in agreement with the peak oil theorists. Controversy and debate continues about the details—the oil industry people speak of it as a plateau, a long-duration peak, and the “peak oil” people forecast more rapid decline based on their observations of past oil fields in decline. But the very fact of it now seems to be largely accepted. The principle of exponential demand meeting production rates that are slowing, leveling, and declining is not altered by details. Its implications remain the same. It is true that the current recession, higher prices for oil, and the resulting lesser usage of oil to fuel a no-longer-robust economy obscure the realities somewhat at the moment. But postponing the crisis point is not the same as preparing a solution for it.

#### Resource wars defense doesn’t apply – energy imports like coal and gas create new radical security alliances which draw us into great power wars – laundry list of hotspots.

Charles Glaser, 4-27-2011, is professor in the Elliott School of International Affairs and the Department of Political Science, and Director of the Elliott School's Institute for Security and Conflict Studies, holds a Ph.D. from the Kennedy School of Government at Harvard University, MA in Physics and an MPP from Harvard, Emmett Dedmon Professor of Public Policy and Deputy Dean at the Harris School of Public Policy at the University of Chicago, was a visiting fellow at the Center for International Security and Cooperation at Stanford, served on the Joint Staff in the Pentagon, a research associate at the Center of International Studies at MIT, Security Studies Program Seminar, “International Security Implications of Energy Dependence and Vulnerability,” <http://web.mit.edu/ssp/seminars/wed_archives_2011Spring/glaser.html>

The question to be answered is this: “How does US energy dependence, or the energy dependence of other countries, influence national security and the likelihood of getting into conflict?” Energy security is generally assumed to involve the physical security of supply. But then what is the link between energy vulnerability and U.S. national security? While it is most often discussed as oil dependence and vulnerability and the presentation will focus on this, the mechanisms may travel to gas imports or coal imports as well. Prof. Glaser then proceeded to describe the potential mechanisms that would link energy security to national security and conflict. Mechanisms that Link Energy Dependence and Conflict I. The first set of mechanisms focuses specifically on U.S. energy dependence. 1. If the U.S. ability to fight a war is based on the flow of oil, then this poses a combat vulnerability. In the Cold War when trying to prepare to fight in Europe, we did have that vulnerability. If the sea lines of communication (SLOCs) were vulnerable, it created a security problem. Right now that is not a real danger. For now, China does not have the ability to interrupt the flow of oil. Iran does have ability to cut off for an specific amount of time. Maybe a story about China-Iran alliance could claim this. This is likely far-fetched but projecting a few decades forward might make this possible, though unlikely. 2. Threats to U.S. prosperity from energy security that are sufficiently great might require the US to fight to restore prosperity. This may not be classified as “security threat” but it involves U.S. fighting in response. The Gulf War offers an example -- the oil cutoff did not hurt security, only prosperity, but we fight a war for it. The threat is not greater now than it was 10-15 yrs before that. And recently the threat is lower since 1991. This may be harder to say now with the recent Middle East uprising. The major cutoff scenario that would pose a threat is the cutoff of Saudi oil under four possible scenarios: Saudi Arabia simply decided not to sell oil However, they are unlikely to do this. Could they afford it? They probably could for a bit making it within range, but unlikely. The collapse of Saudi regime A year ago many said it was unlikely and it still is, but it is perhaps more possible due to recent uprisings. This is a real danger here. Press and Gholz identify a Saudi cutoff as large enough threat to justify the use of force. But could the U.S. effectively intervene and restore the flow of oil if there was a clear disruption? This is uncertain. The prospect of Saudi facilities being attacked This poses a possible source of outside disruption. Another possible scenario is a cutoff of oil supply from the Strait of Hormuz This scenario has been examined but not with a nuclear Iran, which would be more capable than a conventional Iran of cutting off this supply. 3. Energy-motivated alliances -- Another link between energy security and U.S. prosperity stems from the alliances the U.S. creates specifically for energy interests. Conflicts may not be over energy but energy may be the reason the U.S. is drawn into an alliance and thus into conflict. An example of this would be bringing Georgia into NATO. The claim for NATO expansion to Georgia is energy interests, though this may be an opportunistic rationale since there’s no strategic or inherent reason for the relationship. However, if a Georgia-Russia conflict were to occur, it would not stem over oil but still might cause NATO to intervene to honor its commitments. Though this may not be likely, it is a real possibility. In other words, if this became a threat to US national security or involved it in conflict, it would be because of initial energy considerations. 4. There is a potential mechanism linking national security to energy security through the relationship between U.S. energy needs and terrorism. The U.S. need for energy leads it into Middle Eastern involvement, particularly in Saudi Arabia, and in conflicts like the Gulf war, which does generate some energy for al Qaeda in opposing the U.S. forward bases present largely based on energy. There is a case to be made that less involvement in the Middle East results in al-Qaeda having less interest in us. Anti-Americanism and terrorism may stem out of such energy interests, but it is still possible to assess that, even accepting this, al-Qaeda may not pose much of a danger. II. The second set of mechanisms deals with the influence of other states’ energy dependence on U.S. national security. 5. Alliances entering energy conflicts -- Alliances, forged out of non-energy motives, could get entangled in conflicts over energy that would require the U.S. coming to the defense of their allies. This possibility exists if China and Japan to get into conflict over energy resources in the East China Sea. If this conflict occurs, the U.S. would get drawn into that conflict potentially resulting in major power conflict. This conflict over the maritime boundary was much less intensive before it was discovered that oil and gas may be present. Thus the role of energy and increasing value intensifies competition and the claims over boundaries and islands. 6. Security dilemma mechanism – A country with a resource dependence that seeks to protect it with military power (e.g. China) may end up challenging other states’ and/or U.S. naval capabilities. This could spark competition and though it does not lead to war itself, it could strain political relations and drive a military expansion, making war more likely. As a result, China’s dependence on oil offers potential leverage as well as a source of danger for the United States. 7. Energy dependence reduces U.S. foreign policy leverage - If other great powers are major importers of oil, the U.S. is less able to pressure those oil-exporting countries. The U.S. has a hard time getting China to impose sanctions on Iran due to proliferation because of China’s imports from and investments in Iran. Nuclear proliferation is generally bad for security, particularly with Iran, and there is a belief that energy interests/relations inhibit our ability to crack down on this, thus resulting in a security problem. In broad terms it undercuts our leverage. A similar pattern has emerged with Russian economic interests in Iran with regards to nuclear reactor sales. The China Scenario (mechanism #6) is a relatively new situation: China is a relatively new importer of oil -- it was an exporter until about 15 yrs ago. This will continue to grow in the next few decades no matter what. China’s oil imports are vulnerable to the U.S. navy because much of its oil comes from the Persian Gulf and it has no military ability between the Persian Gulf and Strait of Malacca. It is not a fluke that the U.S. controls the seas, but we have security and energy interests (and regional commitments) to make sure Japan and South Korea are supplied with oil. However, both countries cannot control the SLOCs since it’s a shared space that needs to be controlled. Any country that vulnerable would be concerned, but China is specifically worried about a conflict over Taiwan where the U.S. can coerce China by threatening access to the sea lanes and oil. To fight to protect Taiwan, China also needs a navy that can protect its maritime access and this is a multi-decade project. The U.S. is already concerned about the growth of the Chinese navy. This itself may not lead to conflict but it will be one of the many things that can poison the U.S.-China relationship. The damage from this vulnerability will strain relations to make the crisis more likely (over Taiwan) and may escalate early. This is not simply resource wars but where energy is playing a role in the background that may make conflict more likely. A Variant of Mechanism #2 Another potential example is Iran seeking to inhibit the U.S. ability to access Gulf oil for prosperity reasons. The case of Iran gets more interesting if/when it acquires nuclear weapons. Based on analysis by Caitlin Talmadge, if Iran were to close the Strait of Hormuz, we could open it, but to open the strait, we would need to get involved in fairly extensive conventional operations on land and sea that could escalate. Iran wouldn’t think of using nuclear weapons to close the strait but the U.S. operations to open the strait could escalate rapidly causing their use to be more thinkable at later stages. Iran is more likely to retaliate against U.S. coercion if/when it has nuclear weapons. Most of its current threats are undermined by a lack of a deterrent but it becomes less vulnerable to coercion if it if it acquires nuclear weapons and it could use them in a bargaining manner. Moreover, the most likely danger is that the targets the U.S. is attacking to re-open the straits are land targets and command and control nodes that, as Posen details, could lead to inadvertent escalation. Broader points/takeaways It is not clear that U.S. insecurity has increased in the past two decades, but if it has, energy security is less a problem for the reasons people often point to (like high energy prices) and more likely a problem for reasons like instability in the Gulf. The scenarios with China and nuclear Iran are newer problems and these dangers do not arise out of standard resource war arguments. It is also possible that energy self-sufficiency may abate some of the dangers. Energy dependence may be replacing the value of territory and the terrain of energy transport is becoming more like territory, which invokes a more traditional set of mechanisms for conflict.

### Advantage 3

Is spent fuel

#### Utilities currently store waste in interim storage on site – no reprocessing forces this option.

Robert Alvarez, May 2011, is a Senior Scholar at IPS, where he is currently focused on nuclear disarmament, environmental, and energy policies, former secretary in the DOE, “Spent Nuclear Fuel Pools in the U.S.: Reducing the Deadly Risks of Storage”, Institute for Policy Studies, <http://www.scribd.com/doc/95322584/Spent-Nuclear-FuelPools-in-the-U-S-Reducing-the-Deadly-Risks-of-Storage>

This tragic event is casting a spotlight on the spent fuel pools at U.S. nuclear reactors, which store some of the largest concentrations of radioactivity on the planet. For nearly 30 years, Nuclear Regula-tory Commission waste-storage requirements have been contingent on the timely opening of a permanent waste repository. This has allowed plant operators to legally store spent fuel in onsite cooling pools much longer, and at higher densities (on average four times higher), than was originally intended. Spent fuel pools were designed to be temporary and to store only a small fraction of what they currently hold. “Neither the AEC [Atomic Energy Com-mission, now the Energy Department] nor utilities anticipated the need to store large amounts of spent fuel at operating sites,” said a report by Dominion Power, the owner of the Millstone nuclear reactor in Waterford, Connecticut in October 2001. “Large-scale commercial reprocessing never materialized in the United States. As a result, operating nuclear sites were required to cope with ever-increasing amounts of irradiated fuel... This has become a fact of life for nuclear power stations.

#### U.S. spent fuel pools are a unique risk for mass radiation leaks due to poor protection.

Robert Alvarez, May 2011, is a Senior Scholar at IPS, where he is currently focused on nuclear disarmament, environmental, and energy policies, former secretary in the DOE, “Spent Nuclear Fuel Pools in the U.S.: Reducing the Deadly Risks of Storage”, Institute for Policy Studies, <http://www.scribd.com/doc/95322584/Spent-Nuclear-FuelPools-in-the-U-S-Reducing-the-Deadly-Risks-of-Storage>

Nearly 40 percent of the radioactivity in U.S. spent fuel is cesium-137 (4.5 billion curies) — roughly 20 times more than released from all atmospheric nuclear weapons tests. U.S. spent pools hold about15-30 times more cesium-137 than the Chernobyl ac-cident released. For instance, the pool at the Vermont Yankee reactor, a BWR Mark I, currently holds nearly three times the amount of spent fuel stored at Dai-Ichi's crippled Unit 4 reactor. The Vermont Yankee reactor also holds about seven percent more radioactivity than the combined total in the pools at the four troubled reactors at the Fukushima site. Even though they contain some of the larg-est concentrations of radioactivity on the planet, U.S. spent nuclear fuel pools are mostly contained in ordi-nary industrial structures designed to merely protect them against the elements. Some are made from ma-terials commonly used to house big-box stores and car dealerships. The United States has 31 boiling water reactors (BWR) with pools elevated several stories above ground, similar to those at the Fukushima Dai-Ichi station. Asin Japan, all spent fuel pools at nuclear power plants do not have steel-lined, concrete barriers that cover reactor vessels to prevent the escape of radioactivity. They are not required to have back-up generators to keep used fuel rods cool, if off site power is lost. The 69 Pressurized Water (PWR) reactors operating in the U.S. do not have elevated pools, and also lack proper containment and several have large cavities beneath them which could exacerbate leakage.

#### Accident is likely now - the majority of U.S. spent fuel pools are in earthquake zones.

Robert Alvarez, May 2011, is a Senior Scholar at IPS, where he is currently focused on nuclear disarmament, environmental, and energy policies, former secretary in the DOE, “Spent Nuclear Fuel Pools in the U.S.: Reducing the Deadly Risks of Storage”, Institute for Policy Studies, <http://www.scribd.com/doc/95322584/Spent-Nuclear-FuelPools-in-the-U-S-Reducing-the-Deadly-Risks-of-Storage>

There are 104 U.S. commercial nuclear reactors operating at 64 sites in 31 states that are holding some of the largest concentrations of radioactivity on the planet in onsite spent fuel pools. The pools, typically rectangular or L-shaped basins about 40to 50 feet deep, are made of reinforced concrete walls four to five feet thick and stainless steel liners. Basins without steel liners are more susceptible to cracks and corrosion. Most of the spent fuel ponds at boiling water reactors are housed in reactor buildings several stories above ground. Pools at pressurized water reactors are partially or fully embedded in the ground, sometimes above tunnels or underground rooms. According to estimates provided by the Department of Energy, as of this year this spent fuel contains a total of approximately 12 billion curies of long-lived radioactivity (Table 1).6 Of the 65,000 metric tons estimated by the Nuclear Energy Institute to be generated by the end of 2010, 75 percent is in pools, while the remainder is in dry storage casks. Several of these reactors are located in earthquake zones (Figure 5).

#### No time to contain a U.S. waste spill due to an earthquake.

Tony Dutzik, 3-17-2011, is senior policy analyst, “What Are the Risks Posed by Spent Fuel Pools in the United States?,” Frontier Group, http://www.frontiergroup.org/blogs/blog/fg/what-are-risks-posed-spent-fuel-pools-united-states

The risks of radiation releases from the loss of coolant from spent fuel pools are quite real. Indeed, the occurrence of an earthquake that exceeds the design basis of the nuclear plant has been identified as one of the most probable causes of a loss-of-coolant accident involving spent fuel. In 2006, the U.S. National Research Council issued a detailed report on the risk posed by a terrorist attack on spent fuel pools at nuclear reactors. Among the authors’ conclusions were that “under some conditions, a terrorist attack that partially or completely drained a spent fuel pool could lead to a propagating zirconium cladding fire and the release of large quantities of radioactive materials to the environment.” The report also cited a 2001 Nuclear Regulatory Commission study, summarizing it as follows: “The analysis suggested that large earthquakes and drops of fuel casks from an overhead crane during transfer operations were the two event initiators that could lead to a loss-of-pool-coolant accident. For cases where active cooling (but not the coolant) has been lost, the thermal-hydraulic analyses suggested that operators would have about 100 hours (more than four days) to act before the fuel was uncovered sufficiently through boiling of cooling water in the pool to allow the fuel rods to ignite. This time was characterized as an 'underestimate' given the simplifications assumed for the loss-of-pool-coolant scenario.”

#### PRISMs utilize spent fuel pools as catalysts for energy - eliminates waste.

W.H. Hannum et. al, 2010, has been a senior official with the Department of Energy, H.F. McFarlane earned his Ph.D. in engineering science at California Institute of Technology, is currently associate director of the Technology Development Division at Argonne National Laboratory, D.C. Wade is a Senior Technical Advisor, Distinguished Fellow Engineer Nuclear Engineering Division Argonne National Laboratory, R.N. Hill is the Technical Director at Argonne National Laboratory, Nuclear Energy R&D Nuclear Engineering Division, “The Benefits of an Advanced Fast Reactor Fuel Cycle for Plutonium Management,” p. 18, <http://www.osti.gov/bridge/servlets/purl/459313-d9NYz8/webviewable/>

Plutonium is a fact. World inventories currently exceed 1000 tonnes, and are increasing at 60 to 80 tonnes per year. This can be considered a valuable energy resource or a political and environmental burden, The best approach is that which will maximize the benefits and minimize the burden. A closed fast reactor he1 cycle using an advanced recycle technology provides such an option by using plutonium as a catalyst to extract the full energy content from the world’s uranium reserves, while eliminating excess inventories of plutonium and of other long lived transuranic byproducts. Such a system is fully compatible with rigorous safeguards, and in fact presents few safeguard challenges beyond those which are associated with the once-thorough fuel cycle. The most important long-term contribution of the fast reactor approach to safeguards and prevention of proliferation is that it provides a positive means of managing the overall size of the world’s plutonium and transuranic inventory (Ref. 30). With a kel cycle management strategy driven by economics, the fast reactor can readily absorb excess plutonium stocks, leaving the world inventory sequestered in plants producing useful energy.

#### Existing reprocessing tech is not safe – sheer volume of solutes guarantees critical mass accidents resulting in deadly fallout worsening waste.

Stephen Berry & George S. Tolley, 11-29-2010, James Franck Distinguished Service Professor Emeritus at the University of Chicago, Fellow, American Academy of Arts and Sciences, foreign Member, Royal Danish Academy of Sciences, member and Home Secretary, National Academy of Sciences, J. Heyrovsky Honorary Medal for Merit in the Chemical Sciences, Academy of Sciences of the Czech Republic, Alexander von Humboldt-Stiftung Senior Scientist Award, Phi Beta Kappa National Lecturer, George S. Tolley is a professor emeritus in Economics at the University of Chicago, fellow, American Association for the Advancement of Science, honorary editor, Resource and Energy Economics, honorary Ph.D., North Carolina State University, “Nuclear Fuel Reprocessing Future Prospects and Viability,” p. 6, <http://humanities.uchicago.edu/orgs/institute/bigproblems/Team7-1210.pdf>

Although PUREX is a well-documented and widely used process today, it is far from perfect. Ideally, reprocessing should aim to reduce the radioactivity of waste. While PUREX accomplishes this in some regard, due to the sheer volume of solutes used the result is a much larger quantity of less radioactive waste. Another important concern is that with any buildup of uranium or plutonium there is a possibility of critical mass being attained. Although a chain reaction resulting from such a small amount of lowly enriched material would not be devastating, it could result in direct exposure of workers to high energy gamma and neutron radiation, minor concern for fallout of material into the environment, and decommissioning of the plant. The most recent example of such an accident was in 1999 at the Tokaimura reprocessing plant in Japan. The U-235 criticality achieved was a result of improperly trained workers circumventing standard mixing protocol to expedite the process. Two of the three workers responsible died from receiving a full body radiation dose ~10000 mSv (millisievert). Other workers in the plant as well as people in the surrounding area received radiation doses as well, but none of these exceeded ~50 mSv the average lethal dose being 8000 mSv.5 One could argue that such an accident would never occur if the facility was operated according to standard regulations, but the ability to ensure such fastidious observation of the rules in all workers is debatable.

#### Massive ionizing radiation release makes extinction inevitable.

Rosalie Bertell, 2000, American physician and epidemiologist and winner of several awards, including the Hans-Adalbert-Schweigart-Medal (1983), Right Livelihood Award (1986) World Federalist Peace Award, Ontario Premier's Council on Health, Health Innovator Award, the United Nations Environment Programme Global 500 award, and the Sean MacBride International Peace Prize, “Part One: The Problem: Nuclear Radiation and its Biological Effects,” No Immediate Danger, Prognosis for a Radioactive Earth, The Book Publishing Company, <http://www.ratical.org/radiation/NRBE/NRBE9.html>

In 1964 Hermann Müller published a paper, `Radiation and Heredity', spelling out clearly the implications of his research for genetic effects (damage to offspring) of ionizing radiation on the human species. [17] The paper, though accepted in medical/biological circles, appears not to have affected policy makers in the political or military circles who normally undertake their own critiques of published research. Müller predicted the gradual reduction of the survival ability of the human species as several generations were damaged through exposure to ionizing radiation. This problem of genetic damage continues to be mentioned in official radiation-health documents under the heading `mild mutations'[18] but these mutations are not `counted' as health effects when standards are set or predictions of health effects of exposure to radiation are made. There is a difficulty in distinguishing mutations caused artificially by radiation from nuclear activities from those which occur naturally from earth or cosmic radiation. A mild mutation may express itself in humans as an allergy, asthma, juvenile diabetes, hypertension, arthritis, high blood cholesterol level, slight muscular or bone defects, or other genetic `mistakes'. These defects in genetic make-up leave the individual slightly less able to cope with ordinary stresses and hazards in the environment. Increasing the number of such genetic `mistakes' in a family line, each passed on to the next generation, while at the same time increasing the stresses and hazards in the environment, leads to termination of the family line through eventual infertility and/or death prior to reproductive age. On a large scale, such a process leads to selective genocide of families or species suicide.

#### Environmental impact of a nuclear war.

Leah Ayala, Winter 2003, “Nuclear Power Companies the Department of Energy: A Legal Remedy Magnifying Nuclear Ends,” Nevada Law Journal, Lexis Nexis

A very small amount of nuclear waste can be disastrous. If an amount of plutonium about the same size as a beach ball was properly dispersed, it could cause lung cancer in everyone on earth. R. Routley & V. Routley, Nuclear Energy and Obligations to the Future, 21 INQUIRY 133, 136 (1978). See generally Robin Dusek, Lost in Space?: The Legal Feasibility of Nuclear Waste Disposal in Outer Space, 22 WM. & MARY ENVTL. L. & POL'Y REV. 181 (1997). Some estimate that a large release of nuclear waste from Yucca Mountain, which has a capacity to hold 77,000 metric tons of waste, would exceed the environmental impact of a nuclear war. This is a huge amount of waste compared to the "few dozen pounds" of waste released in the Chernobyl explosion that is estimated will result in between 17,000 to 475,000 human deaths from cancer. Broad, supra note 132. Each of the spent fuel assemblies that will be stored in the repository contains a similar amount of radioactivity as ten Hiroshima bombs. Lazarus, supra note 1 (citing Klaus Schumann, a Green Party activist and member of the San Luis Obispo County Nuclear Waste Management Committee).

### 1AC solvency

#### Loan guarantees are key to establishing PRISM reactors.

Stephen Berry & George S. Tolley, 11-29-2010, James Franck Distinguished Service Professor Emeritus at the University of Chicago, Fellow, American Academy of Arts and Sciences, foreign Member, Royal Danish Academy of Sciences, member and Home Secretary, National Academy of Sciences, J. Heyrovsky Honorary Medal for Merit in the Chemical Sciences, Academy of Sciences of the Czech Republic, Alexander von Humboldt-Stiftung Senior Scientist Award, Phi Beta Kappa National Lecturer, George S. Tolley is a professor emeritus in Economics at the University of Chicago, fellow, American Association for the Advancement of Science, honorary editor, Resource and Energy Economics, honorary Ph.D., North Carolina State University, “Nuclear Fuel Reprocessing Future Prospects and Viability,” p. 38, <http://humanities.uchicago.edu/orgs/institute/bigproblems/Team7-1210.pdf>

The construction of an aqueous solvent extraction plant would be out of date, especially when the more promising option of pyroprocessing is on the horizon. In comparison, to current available methods, pyroprocessing produces virtually no waste, can be done on-site, and offers the option of fabricating proliferation resistant fuel from plutonium as well as uranium. The second question in regard to domestic reprocessing is, “how much direct involvement should the government have in the reprocessing business?” Government involvement could be justified on the grounds of the externalities present in nuclear waste disposal. This could take on a variety of forms - government research efforts, subsidizing reprocessing (or offering tax credits and loan guarantees), or even operating a reprocessing center on its own. Through its actions, the government will be able to influence the development and growth of the nuclear reprocessing industry in the United States. These efforts in support of pyroprocessing and other advanced fuel cycle technologies represent a small portion of the Department of Energy budget - only $142,652,000 out of a total of $33,856,453,000 in discretionary funding in FY 2009, or less than half of one percent98. Furthermore, private companies do not have sufficient independent incentives to reduce the long-term health and environmental consequences of nuclear waste disposal. While it is beyond the scope of this paper to present a formal costbenefit analysis of R&D efforts, given the minimal costs and the large potential benefits, the chances of success do not need to be very high to justify continued government expenditures in this area.

#### PRISM’s are at low cost and have expedited construction because of a pre-licensed design – solves emission problems.

Magdi Ragheb, 3-9-2012, Ph.D., Nuclear Engineering/Computer Sciences, Univ. of Wisconsin, Associate Professor, Interdisciplinary Research Center, National Center for Supercomputing Applications (NCSA), Univ. of Illinois at Urbana-Champaign, Fusion Research Program, Univ. of Wisconsin, Department of Nuclear Engineering, Brookhaven National Laboratory, “RESTARTING THE STALLED USA NUCLEAR RENAISSANCE,” <https://netfiles.uiuc.edu/mragheb/www/NPRE%20402%20ME%20405%20Nuclear%20Power%20Engineering/Restarting%20the%20USA%20Stalled%20Nuclear%20Renaissance.pdf>

GE Hitachi Nuclear Energy, GEH next evolution of the Na cooled reactor technology is the Power Reactor Innovative Small Modular, PRISM reactor concept. The use of Na as a coolant allows for a fast neutrons spectrum in the core allowing breeding; hence a long time between refuellings. In addition, the hard neutron spectrum fissions the transuranic elements produced in the U-Pu fuel cycle, converting them into shorter lived fission products. This produces useful energy as well as reduces the volume and complexity of the U-Pu cycle waste disposal problem. The concept can also be used for consuming the transuranics in used nuclear fuel from water cooled reactors. Sodium-cooled reactors enjoy a safety aspect of operating at low pressure compared with light water cooled reactors. The PRISM reactor employs passive safety design features. Its simple design, allows factory fabrication with modular construction and ultimately lower costs. Passive core cooling is used enhancing the reactor’s safety. The residual or decay heat is passively released to the atmosphere with the elimination of active safety systems. Electromagnetic pumps without moving parts are used, eliminating valves and motors used in other nuclear island designs. The standardized modular design allows for an expedited construction schedule due to pre-licensed design, and factory fabrication. PRISM has a reference construction schedule of 36 months. A single PRISM power block generating 622 MWe the same amount of electricity generated in the USA through conventional sources would reduce greenhouse gas emissions by an amount equivalent to taking 700,000 cars off the road while at the same time offering the possibility of acting as an actinides burner consuming LWRs used nuclear fuel.

#### PRISM could be developed in five years – other reprocessing alternatives create worse waste problems.

Fred Pearce, 8-8-2012, is a freelance author and journalist based in the UK, he serves as environmental consultant for New Scientist magazine and is the author of numerous books, including When The Rivers Run Dry and With Speed and Violence, in previous articles for Yale Environment 360, environment 360, Breakthrough Institute, “Nuclear Fast Reactor: The Saviour of Nuclear Power?,” <http://oilprice.com/Alternative-Energy/Nuclear-Power/Nuclear-Fast-Reactor-The-Saviour-of-Nuclear-Power.html>

The PRISM fast reactor is attracting friends among environmentalists formerly opposed to nuclear power. They include leading thinkers such as Stewart Brand and British columnist George Monbiot. And, despite the cold shoulder from the Obama administration, some U.S. government officials seem quietly keen to help the British experiment get under way. They have approved the export of the PRISM technology to Britain and the release of secret technical information from the old research program. And the U.S. Export-Import Bank is reportedly ready to provide financing. Britain has not made up its mind yet, however. Having decided to try and re-use its stockpile of plutonium dioxide, its Nuclear Decommissioning Authority has embarked on a study to determine which re-use option to support. There is no firm date, but the decision, which will require government approval, should be reached within two years. Apart from a fast-breeder reactor, the main alternative is to blend the plutonium with other fuel to create a mixed-oxide fuel (mox) that will burn in conventional nuclear power plants. Britain has a history of embarrassing failures with mox, including the closure last year of a $2 billion blending plant that spent 10 years producing a scant amount of fuel. And critics say that, even if it works properly, mox fuel is an expensive way of generating not much energy, while leaving most of the plutonium intact, albeit in a less dangerous form. Only fast reactors can consume the plutonium. Many think that will ultimately be the UK choice. If so, the PRISM plant would take five years to license, five years to build, and could destroy probably the world's most dangerous stockpile of plutonium by the end of the 2020s. GEH has not publicly put a cost on building the plant, but it says it will foot the bill, with Proponents of fast reactors see them as the nuclear application of one of the totems of environmentalism: recycling. the British government only paying by results, as the plutonium is destroyed. The idea of fast breeders as the ultimate goal of nuclear power engineering goes back to the 1950s, when experts predicted that fast-breeders would generate all Britain's electricity by the 1970s. But the Clinton administration eventually shut down the U.S.'s research program in 1994. Britain followed soon after, shutting its Dounreay fast-breeder reactor on the north coast of Scotland in 1995. Other countries have continued with fast-breeder research programs, including France, China, Japan, India, South Korea, and Russia, which has been running a plant at Sverdlovsk for 32 years.

#### It’s the only reactor that is ready for commercial deployment – comparatively better to meet all necessary goals.

Barry Brook & Tom Blees, 10-23-2012, a leading environmental scientist, holding the Sir Hubert Wilkins Chair of Climate Change at the School of Earth and Environmental Sciences, and is also Director of Climate Science at the University of Adelaide’s Environment Institute, published three books, over 200 refereed scientific papers, is a highly cited researcher, received a number of distinguished awards for his research excellence including the Australian Academy of Science Fenner Medal, is an International Award Committee member for the Global Energy Prize, Australian Research Council Future Fellow, ISI Researcher, Ph.D., Macquarie University in Environmental Engineering, Science Council for Global Initiatives, Edgeworth David Medal Royal Society of NSW, Cosmos Bright Sparks Award, Tom Blees is the author of Prescription for the Planet, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, BraveNewClimate, “The Case for Near-term Commercial Demonstration of the Integral Fast Reactor,” <http://bravenewclimate.com/2012/10/23/the-case-for-near-term-commercial-demonstration-of-the-integral-fast-reactor/>

The conferees also touched on other fast reactor and thermal reactor systems being considered today, in varying degrees of development: molten fluoride salt thorium reactors (LFTRs), liquid-salt-cooled pebble fuel systems, etc. [16] While some of these hold promise, none are near the level of readiness for near-term commercial-prototype deployment as the PRISM reactor and its metal-fuel technology. In addition, none of the immediate prospects can match the IFR concept in meeting all the goals of the Gen IV initiative.

#### Peak energy will happen with our current energy system in the status-quo and the result is extinction – the only sustainable solution is the new PRISM reactor.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 82, Amazon.com

All in all, carbon and hydrocarbon availability will also certainly peak and diminish in the next twenty-five years or so. Populations and energy demand will, on the other hand, continue to increase, exponentially if the past is a guide. All the “alternative energy” sources, as defined by environmental groups, with some possible but limited exception in bio-fuels, will come to nothing on the scale of energy replacement required. Physical limitations guarantee this. Nuclear energy has no such physical limitations. Its predicted role, however, remains marginal in all accepted mainstream predictions of future energy supplies. Again, the reasons are obvious, and directly attributable to the successful anti-nuclear campaigns of organized environmental groups. The only result of this path, unaltered, is increasing shortage of energy—life-changing draconian. A perusal of the current literature will demonstrate that this kind of future is looked upon with equanimity, even with enthusiasm, by those who push “alternative energies.” It is a utopian recipe for global disaster. And it will not happen. Civilizations, nations, will do their best to maintain their energy supplies and do whatever is necessary. The most realistic, and peaceful, avenue is plentiful electricity supplied by nuclear power. It will not substitute directly for all other forms of energy. But it will provide limitless electrical power. Electricity is very adaptable, and if you have it abundantly a lot of substitution can be done. A great deal of nuclear capacity will be required. Military might is not required. Attention is. Comfortable views of nuclear power as a small element of the global energy picture are common enough. The recent report, “Nuclear Power Joint Fact-Finding” by the Keystone Center [5], is an excellent example of this. In essence, they extrapolate the situation today, where nuclear energy is a useful but small contributor to U.S. energy overall, and surveying the present state of the nuclear industry in the U.S., conclude that there will be difficulty in maintaining even this. There is no evidence of any alarm at this. The important, the all-important point, is evaded completely: the carbon-based energy system that we have relied upon completely for our nation’s well-being is now endangered. This is not to happen far out in the future; masked somewhat by the recession, it is happening now. Real additions of large magnitude to energy supplies are absolutely essential. The alternative is conflict—military action, if history is any guide, as nations fight for energy resources; or pushed further, some scenario of the doomsayers whose theme is the inevitability of the collapse of civilization. The situation is serious, and it is made more serious by the fact that it is not generally recognized as such and little of use is being done. And if nuclear power is to fill the role that must be assigned to it, the IFR or something very similar is needed.

#### No risk of accidents – chemical benefits and engineering experience.

Barry Brook & Tom Blees, 10-23-2012, a leading environmental scientist, holding the Sir Hubert Wilkins Chair of Climate Change at the School of Earth and Environmental Sciences, and is also Director of Climate Science at the University of Adelaide’s Environment Institute, published three books, over 200 refereed scientific papers, is a highly cited researcher, received a number of distinguished awards for his research excellence including the Australian Academy of Science Fenner Medal, is an International Award Committee member for the Global Energy Prize, Australian Research Council Future Fellow, ISI Researcher, Ph.D., Macquarie University in Environmental Engineering, Science Council for Global Initiatives, Edgeworth David Medal Royal Society of NSW, Cosmos Bright Sparks Award, Tom Blees is the author of Prescription for the Planet, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, BraveNewClimate, “The Case for Near-term Commercial Demonstration of the Integral Fast Reactor,” <http://bravenewclimate.com/2012/10/23/the-case-for-near-term-commercial-demonstration-of-the-integral-fast-reactor/>

One of the issues most often mentioned when discussing sodium-cooled fast reactors—by far the type with the most reactor-years of experience worldwide—is the chemical reactivity of sodium, which burns upon contact with air (though with a very cool flame) and reacts quite dramatically upon contact with water. Yet sodium has several compelling advantages in fast-reactor operation: superior heat-exchange properties, virtually no corrosive effect on reactor components even after decades of operation, short half-life of sodium isotopes that form in the reactor vessel, etc. (see previous section). Some advocates of other systems characterize sodium’s volatility as a deal-breaker. But the intermediate loop that transfers heat from the reactor vessel to the steam generator contains only non-radioactive sodium, with the steam generator isolated in a separate structure, assuring that in the highly unlikely event of a sodium-water reaction there will be no danger to the primary system and no chance of radioactive material being involved. This design means that the unfairly characterized sodium problem is nothing more than an engineering design issue, involving a common element that has been used in industrial processes for well over a century. With over 300 reactor-years of experience with sodium-cooled fast reactors around the world, not a single instance of sodium-water interaction resulting in radioactive release has been recorded [15].

# 2AC

## 2AC de-dev

#### Nuclear energy is the answer to energy sustainability – dedevolving will not happen and will cause resource competition and great power war.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 99, Amazon.com

A failure to begin now to reduce reliance on coal will mean much greater economic hardship when the peak arrives. World fossil energy will begin to decline very soon, and there is no perfect substitute. The climate modelers and anti-nuclear activists will always point to policies with mandatory energy curtailment and societal adjustment to lower consumption levels. Policies such as these impact everything—agriculture, transport, trade, urban design, and national electrical grid systems—and everything dependent on them, including global telecommunications. Substitution of nuclear for fossil fuels is perfect for electricity. For transportation, agriculture, and other motive usages it is not—but electricity is energy and energy can be used in any number of innovative ways. No energy is no option. Will America willingly return to the simple agrarian ways dreamed by many in the environmental movement? This idea is influential in thinking today, while all forms of energy at least in this country are abundant, but will it withstand real scarcity? An America willingly retreating into the Middle Ages for lack of energy, while China builds itself in to an industrial powerhouse. Does this seem even remotely likely? Those who project with apparent satisfaction very limited nuclear power for America while all depleting resources show an increasing inability to sustain their historical role often have real political influence. They must face these facts. Will they?

#### Dedev fails - authors ignore the status of the world now.

John Foster, 2011, professor of sociology at the University of Oregon, Editor of Monthly Review, “Capitalism and Degrowth: An Impossibility Theorem,” http://monthlyreview.org/2011/01/01/capitalism-and-degrowth-an-impossibility-theorem

The notion that degrowth as a concept can be applied in essentially the same way both to the wealthy countries of the center and the poor countries of the periphery represents a category mistake resulting from the crude imposition of an abstraction (degrowth) on a context in which it is essentially meaningless, e.g., Haiti, Mali, or even, in many ways, India. The real problem in the global periphery is overcoming imperial linkages, transforming the existing mode of production, and creating sustainable-egalitarian productive possibilities. It is clear that many countries in the South with very low per capita incomes cannot afford degrowth but could use a kind of sustainable development, directed at real needs such as access to water, food, health care, education, etc. This requires a radical shift in social structure away from the relations of production of capitalism/imperialism. It is telling that in Latouche’s widely circulated articles there is virtually no mention of those countries, such as Cuba, Venezuela, and Bolivia, where concrete struggles are being waged to shift social priorities from profit to social needs. Cuba, as the Living Planet Report has indicated, is the only country on Earth with high human development and a sustainable ecological footprint.20 It is undeniable today that economic growth is the main driver of planetary ecological degradation. But to pin one’s whole analysis on overturning an abstract “growth society” is to lose all historical perspective and discard centuries of social science.

#### Psychological ties to consumption ensures rolling back growth will cause conflict.

Alejandro Nadal, 2010, Professor at the Centre for Economic Studies of El Colegio de Mexico, “Is De-Growth Compatible With Capitalism?,” <http://triplecrisis.com/is-de-growth-compatible-with-capitalism/>

The problem with this perspective is that the cause of growth becomes psychological, a question of mentalities and even fashion. The idea that growth could originate from endogenous forces in capitalist economies is ignored. Growth is not only a cultural phenomenon or a feature of a maniac mentality. It is the direct consequence of how capitalist economies operate. This is true of capitalism as it operated in Genoa in the sixteenth century, and it is true today with the mega-corporations that rule global markets. The purpose of capital is to produce profits without end, that’s the meaning of its particular form of circulation. Its purpose is not to produce useful things or useless stuff, its object is to produce profits without end and produce more capital. This is the engine of accumulation and it is fuelled by inter-capitalist competition. In the words of Marx’s Grundrisse, “Conceptually, competition is nothing other than the inner nature of capital, its essential character, appearing in and realized as the reciprocal interaction of many capitals with one another, the inner tendency [presents itself] as external necessity. Capital exists and can only exist as many capitals, and its self-determination therefore appears as their reciprocal interaction with one another.” By the forces of competition, “capital is continuously harassed: March! March!” Thus, Marx’s analysis shows convincingly that capital can only exist as private centres of accumulation that are driven by (inter-capitalist) competition. This is why, in its quest to expand and survive (as an independent centre of accumulation) capital is continuously opening new spaces for profitability: new products, new markets. The corollary of this is that the only way in which we can get rid of “growth mania” is by getting rid of capitalism. It is not possible to have capitalism without growth. Is there a technological fix out of this? In other words, can we have such an efficient technological infrastructure (in buildings, energy and transport systems, manufacturing, etc.) that even with growth the ecological footprint could be reduced? This remains to be seen, but one phenomenon seems to conspire against this: the rebound effect. As technologies become more efficient and unit costs become smaller, consumption increases. Either existing consumers deepen their consumption, or more people have access to the objects or services being put on the marketplace. The end result is that the positive effects of greater efficiency are cancelled by deepening consumption rates. And let’s not forget what happens when consumption stops or slows down: those centres of accumulation cannot sell their commodities, inventories grow, unemployment soars and we have recessions, depressions and crises. From the side of production, for those individual centres of accumulation every gadget, every nook and cranny in the world, or any vast expanse of geographical space is a space waiting to be occupied for profits. From pep pills to tranquilizers, food and water, health and even genetic resources or nano-materials, to the anxious eyes of capital all of these dimensions are but spaces for profitability. Talk about investing in “natural capital” as a way out to the dilemma is devoid of any sense. It could very well be that, in the words of Richard Smith we either save capitalism or save ourselves, we cannot do both

#### Quick economic collapse ensures transitional conflict – own author.

Ted Trainer, 2000 “Democracy and Nature” Vol. 6, No. 1

If there is a boom we in the Eco-village movement should welcome it, though gritted teeth, because it will give us the time we desperately need. The last thing we want is a collapse of the system in the immediate future. We are far from ready. Hardly any of the hundreds of millions of people who live in rich world cities have any idea of an alternative to the consumer way and their settlements have no provision for anything but maximizing the throughput of resources. By all means let’s have a collapse a little later, but the prospects for the simpler way depend greatly on how extensively the concept can be established before the mainstream runs into serious trouble. We need at least two more decades to build the understanding, and the most effective way to do that is by developing examples

#### Causes extinction.

Kothari, 1982, Professor of political science at University of Delhi, “Towards a Just Social Order,” p. 571

Attempts at global economic reform could also lead to a world racked by increasing turbulence, a greater sense of insecurity among the major centres of power -- and hence to a further tightening of the structures of domination and domestic repression – producing in their wake an intensification of the old arms race and militarization of regimes, encouraging regional conflagrations and setting the stage for eventual global holocaust.

#### No mindset shift – elites.

Richard Heinberg, 2004, Senior Fellow of Post Carbon Institute and Member of the Core Faculty at the New College of California and Writer on Energy Resource Issues, “Power Down: Options and Actions for a Post-Carbon World,” p. 167-8

There is no need to belabor the point: the people of this world whose opinions count the most — the people with the power to command armies, economies, and governments — have already made up their minds. The cards are dealt and the bets are on the table. For them, the coming decades will constitute a fatal game of Last One Standing, a brutal contest for the world's remaining resources. To the interested observer, this may seem patently insane. Even the nation that "wins" the game will be utterly devastated. In the end, oil, natural gas, and even coal will run out, and not even the wealthy will be able to maintain their current way of life. And in the meantime, hundreds of millions — perhaps billions — will have violently perished. Why would anyone choose this path? It is possible to understand the reason for the current course of events only by looking at who is choosing it, and at the incentives and constraints to which they are subject. The elites — corporate owners and managers, government officials, and military commanders — are people who have been selected for certain qualities: loyalty to the system, competitiveness, and hunger for power. Often they are literally bred for their roles. Like George W. Bush, they are people born to wealth and power, and raised to assume that privilege is their birthright. These are people who identify with the system and the status quo; they are constitutionally incapable of questioning its fundamental assumptions. Moreover, the elites are guided day-to-day by a set of incentives that are built into the system itself. Managers who pursue immediate gain get ahead, while those who make short-term sacrifices in order to preserve long-term stability are often at a disadvantage. Likewise, managers are rewarded who keep up appearances, who generate good news, and who exude confidence. Confessing errors accrues no benefit; instead, managers are encouraged to deny short-comings and to blame competitors or subordinates.

#### Growth driven policies are inevitable and key to solve extinction.

Michael Zey, 1998, Business Professor at Montclair State University, Seizing the Future: The Dawn of the Macroindustrial Era. p. 34

Having reached its current lofty state of development, the species will not choose to regress. The fact that the species is forging its way en masse into the Macroindustrial Era proves that our need to grow is almost a genetically based predisposition. The species ultimately understands there can be no turning back on the road to progress. However, no outside force guarantees the continued progress of the human species, nor does anything mandate that the human species must even continue to exist. In fact, history is littered with races and civilizations that have disappeared without a trace. So, too, could the human species. There is no guarantee that the human species will survive even if we posit, as many have, a special purpose to the species existence. Therefore, the species innately comprehends that it must engage in purposive actions to maintain its level of growth and progress. Humanity’s future is conditioned by what I call the Imperative of Growth, a principle I will herewith describe alone with its several correlates. The Imperative of Growth states that in order to survive, any nation, indeed, the human race, must grow, both materially and intellectually. The Macroindustrial Era represents growth in the areas of both technology and human development, a natural stage in the evolution of the species’ continued extension of its control over itself and its environmental. Although 5 billion strong, our continued existence depends on our ability to continue the progress we have been making at higher and higher levels.

#### Growth key to solve poverty.

Ian Vásquez, 2001, Director of the CATO Institute’s Project on Global Economic Liberty, Economic Perspectives, “Ending Mass Poverty,” September, http://www.cato.org/research/articles/vas-0109.html

Economic growth is the "only path to end mass poverty," says economist Ian Vásquez, who argues that redistribution or traditional poverty reduction programs have done little to relieve poverty. Vásquez writes that the higher the degree of economic freedom -- which consists of personal choice, protection of private property, and freedom of exchange -- the greater the reduction in poverty. Extending the system of property rights protection to include the property of poor people would be one of the most important poverty reduction strategies a nation could take, he says. The historical record is clear: the single, most effective way to reduce world poverty is economic growth. Western countries began discovering this around 1820 when they broke with the historical norm of low growth and initiated an era of dramatic advances in material well-being. Living standards tripled in Europe and quadrupled in the United States in that century, improving at an even faster pace in the next 100 years. Economic growth thus eliminated mass poverty in what is today considered the developed world. Taking the long view, growth has also reduced poverty in other parts of the world: in 1820, about 75 percent of humanity lived on less than a dollar per day; today about 20 percent live under that amount. Even a short-term view confirms that the recent acceleration of growth in many developing countries has reduced poverty, measured the same way. In the past 10 years, the percentage of poor people in the developing world fell from 29 to 24 percent. Despite that progress, however, the number of poor people has remained stubbornly high at around 1,200 million. And geographically, reductions in poverty have been uneven.

#### These systemic impacts outweigh all.

James Gilligan, 1998, Professor of Psychiatry at the Harvard Medical School, Director of the Center for the Study of Violence, and a member of the Academic Advisory Council of the National Campaign Against Youth Violence, “Violence: Our Deadly Epidemic and its Causes”, p. 191-6

The deadliest form of violence is poverty. You cannot work for one day with the violent people who fill our prisons and mental hospitals for the criminally insane without being forcible and constantly reminded of the extreme poverty and discrimination that characterizes their lives. Hearing about their lives, and about their families and friends, you are forced to recognize the truth in Gandhi’s observation that the deadliest form of violence is poverty. Not a day goes by without realizing that trying to understand them and their violent behavior in purely individual terms is impossible and wrong-headed. Any theory of violence, especially a psychological theory, that evolves from the experience of men in maximum security prisons and hospitals for the criminally insane must begin with the recognition that these institutions are only microcosms. They are not where the major violence in our society takes place, and the perpetrators who fill them are far from being the main causes of most violent deaths. Any approach to a theory of violence needs to begin with a look at the structural violence in this country. Focusing merely on those relatively few men who commit what we define as murder could distract us from examining and learning from those structural causes of violent death that are for more significant from a numerical or public health, or human, standpoint. By “structural violence” I mean the increased rates of death, and disability suffered by those who occupy the bottom rungs of society, as contrasted with the relatively low death rates experienced by those who are above them. Those excess deaths (or at least a demonstrably large proportion of them) are a function of class structure; and that structure itself is a product of society’s collective human choices, concerning how to distribute the collective wealth of the society. These are not acts of God. I am contrasting “structural” with “behavioral violence,” by which I mean the non-natural deaths and injuries that are caused by specific behavioral actions of individuals against individuals, such as the deaths we attribute to homicide, suicide, soldiers in warfare, capital punishment, and so on. Structural violence differs from behavior violence in at least three major respects. \*The lethal effects of structural violence operate continuously, rather than sporadically, whereas murders, suicides, executions, wars, and other forms of behavior violence occur one at a time. \*Structural violence operates more or less independently of individual acts; independent of individuals and groups (politicians, political parties, voters) whose decisions may nevertheless have lethal consequences for others. \*Structural violence is normally invisible, because it may appear to have had other (natural or violent) causes. [CONTINUED] The finding that structural violence causes far more deaths than behavioral violence does is not limited to this country. Kohler and Alcock attempted to arrive at the number of excess deaths caused by socioeconomic inequities on a worldwide basis. Sweden was their model of the nation that had come closest to eliminating structural violence. It had the least inequity in income and living standards, and the lowest discrepancies in death rates and life expectancy; and the highest overall life expectancy of the world. When they compared the life expectancies of those living in the other socioeconomic systems against Sweden, they found that 18 million deaths a year could be attributed to the “structural violence” to which the citizens of all the other nations were being subjected. During the past decade, the discrepancies between the rich and poor nations have increased dramatically and alarmingly. The 14 to 19 million deaths a year caused by structural violence compare with about 100,000 deaths per year from armed conflict. Comparing this frequency of deaths from structural violence to the frequency of those caused by major military and political violence, such as World War II (an estimated 49 million military and civilian deaths, including those by genocide – or about eight million per year, 1939-1945), the Indonesian massacre of 1965-66 (perhaps 575,000 deaths), the Vietnam war (possibly two million, 1954-1973), and even a hypothetical nuclear exchange between the U.S. and the U.S.S.R. (232 million), it is clear that even war cannot begin to compare with structural violence, which continues year after year. In other words, every fifteen years, on the average, as many people die because of relative poverty as would be killed by the Nazi genocide of the Jews over a six-year period. This is, in effect, the equivalent of an ongoing, unending, and accelerating, thermonuclear war, or genocide, perpetrated on the weak and poor every year of every decade, throughout the world. Structural violence is also the main cause of behavioral violence on a socially and epidemiologically significant scale (from homicide and suicide to war and genocide). The question as to which of the two forms of violence – structural or behavioral – is more important, dangerous, or lethal is moot, for they are inextricably related to each other, as cause to effect.

#### Dedevelopment ensure environmental catastrophe – impact’s biodiversity collapse from the 1AC.

Martin Lewis, 1993, “green delusions,” p.8

Finally, the radical green movement threatens nature by advocating a return to the land, seeking to immerse the human community even more fully within the intricate websof the natural world. Given the rpesent human population, this is hardly possible, and even if it were to occur it would result only in accelerated destruction. Ecological philosophers may argue that we could flow the paths of the primal peoples who live in intrinsic harmony with nature, but they are mistaken. Tribal groups usually do live lightly on the earth, but often only because they populations densities are low. To return to preindustrial “harmony” would necessarily entail much more than merely decimating the human population. Yet unless our numbers could be reduced to a small fraction of present levels, any return to nature would be an environmental catastrophe. The more the human presence is placed directly on the land and the more immediately it is provisioned from nature, the fewer resources will be available for nonhuman species. If all Americans were to flee from metropolitan areas, rural populations would soar and wildlife habitat would necessarily diminish.

#### No impact to anthropogenic warming – multiple reasons\*\*\*

Peter Ferrara, 3-1-2012, Director of Entitlement and Budget Policy for the Heartland Institute, General Counsel for the American Civil Rights Union, and Senior Fellow at the National Center for Policy Analysis, Forbes, “Fakegate: The Obnoxious Fabrication of Global Warming,” <http://www.forbes.com/sites/peterferrara/2012/03/01/fakegate-the-obnoxious-fabrication-of-global-warming/3/>

The bottom line is that the temperature records are not consistent with the theory that human “greenhouse” gas emissions are the primary cause of global warming. Those records do not show temperatures rising in conjunction with such ever rising emissions as the globe increasingly industrializes. Instead, the temperature record shows an up and down pattern that follows the pattern of natural influences on global temperatures, such as cyclical sunspots and solar flares, and cycles of ocean churning from warmer to colder temperatures and back, such as the Pacific Decadal Oscillation (PDO). Moreover, the incorruptible and objective satellite temperature records show only modest warming starting in the late 1970s, which stopped roughly 10 years ago, with more recent declines. That is consistent with temperature proxy records found in nature, such as tree rings and ice cores. But that diverges significantly from the corruptible and subjectively compiled land based records, the repeated manipulation of which has prompted several prominent climate scientists to call for an investigation. Perhaps Gleick’s skills in falsification can be found more broadly among his colleagues. In addition, the work of the UN’s IPCC is based on numerous climate models that attempt to project temperatures decades into the future. Those models are all based on the circular assumption that the theory of man caused global warming is true. As 16 world leading climate scientists recently reported in a letter to the Wall Street Journal, “[A]n important gauge of scientific expertise is the ability to make successful predictions. When predictions fail, we say that the theory is ‘falsified’ and we should look for the reasons for the failure. Shown in the nearby graph is the measured annual temperature of the earth since 1989, just before the first report of the Intergovernmental Panel on Climate Change (IPCC). Also shown are the projections of the likely increase of temperature, as published in the Summaries of each of the four IPCC reports, the first in the year 1990 and the last in the year 2007. “From the graph it appears that the projections [of the models] exaggerate, substantially, the response of the earth’s temperature to CO2 which increased by about 11% from 1989 through 2011. Furthermore, when one examines the historical temperature record throughout the 20th century and into the 21st, the data strongly suggest a much lower CO2 effect than almost all models calculate.” Seems like the models have been falsified. The likely reason for that failure is that while the models recognize that increased CO2 itself will not produce a big, catastrophic increase in global temperatures, the models assume that the very small amount of warming caused by increased CO2 will result in much larger temperature increases caused by positive feedbacks. The real, emerging science, as the Heartland publications indicate, is that the feedbacks are more likely to be offset by negative feedbacks, resulting in a much smaller net temperature change. Scientists have pointed out that much higher CO2 concentrations deep in the earth’s history, as shown by proxy records, did not result in catastrophic temperature increases, a very powerful rebuttal to the idea today’s relatively low CO2 levels could trigger catastrophic global warming. The results of the latest, most advanced data collection also suggest that CO2 is not responsible for the modest global warming of the late 20th century. The UN models agree with established science that if human greenhouse gas emissions were causing global warming, there should be a hot spot of higher temperatures in the troposphere above the tropics, where collected concentrations would have the greatest effect, and the warming would show up first. This is known in the literature on climate science as “the fingerprint” for man caused global warming. But data from global weather satellites and more comprehensive weather balloons show no hotspot, and no fingerprint, which means no serious global warming due to human greenhouse gas emissions. QED. Moreover, satellites also have been measuring the energy entering the earth’s atmosphere from the sun, and the energy escaping back out to space. If the theory of man caused global warming is correct, then the energy escaping back out should be less than the energy entering, as the greenhouse gases capture some of the energy in the atmosphere. But the satellite data show negligible difference. The real cutting edge in climate science was publicly exposed recently in a book by one of the long time leaders of the German environmental movement, Fritz Vahrenholt, in his new book, The Cold Sun. The book expresses the growing concern among more careful real climate scientists, rather than political scientists, that trends in solar activity portend a return to the cold, limited agricultural output, and widespread disease of the Little Ice Age, or even a more full blown, overdue by historical standards, real ice age. The consolation is that those threatening developments are still centuries away. In an interview with Spiegel magazine, titled “I Feel Duped on Climate Change,” Vahrenholt tells readers that the UN’s forecasts on the severity of climate change are exaggerated and supported by weak science. The American version would be Al Gore producing a movie with the title, “The Most Inconvenient Truth: I Was Wrong.” The root of the global warming confusion is that the UN is not a disinterested party that can be trusted to compile and interpret the climate science on which the world’s policymakers can rely. The UN sees the theory of man caused catastrophic global warming as a tremendous opportunity for gaining the regulatory and taxation powers of a world government.

#### Growing consensus of scientists find alarmist warming models wrong – natural oscillations from solar irradiance and ocean-atmosphere interaction.

Norman Paterson, March 2011, is a Professional Engineer and Consulting Geophysicist with 60 years’ experience in Mineral and Environmental Geophysics, he obtained his Ph. D in Geophysics at the University of Toronto, and was elected Fellow, Royal Society of Canada, Geoscience Canada, Vol. 38 Issue 1, “Global Warming: A Critique of the Anthropogenic Model and its Consequences,” p. 41, Ebsco Host

According to popular belief, recent global warming has been caused largely by greenhouse gases, primarily CO2, accruing in the atmosphere, and man is responsible for most of the ~120 ppm increase in CO2 over the last 100 years. This article cites a number of recent peer-reviewed scientific papers, and finds that contrary arguments by a growing body of scientists are generally supported by better empirical data than those that favour the ‘anthropogenic warming’ hypothesis. These arguments invoke the effects of solar irradiance and ocean–atmosphere interactions, both of which have been shown to have warming effects at least as great as those claimed for CO2, and to be based on sound, well-understood scientific theory. Furthermore, the global warming models used by the Intergovernmental Panel on Climate Change (IPCC) and others have in some cases been shown to be incorrect and contrary to current temperature statistics. For these and other reasons, the CO2-driven, anthropogenic warming hypothesis is regarded by many as suspect and lacking in empirical evidence. The difficulty of refuting this popular hypothesis is exacerbated by the IPCC’s United Nations mandate to advise governments on the severity of man-made global warming, a mandate that they have followed faithfully, encouraging the emergence of a large body of funded research that supports their view. This presents a problem for global society, as the human-caused warming scenario diverts attention from other, at least equally serious environmental impacts of our industrial society. Recently, however, there appears to be a tilting of public opinion away from global warming alarmism, which may fundamentally affect the direction of the climate change debate.

#### Just letting a sharp decline happen causes boom and bust cycles and which make economic nationalism and war inevitable.

Jeffrey E. Garten (Juan Trippe Professor in the Practice of International Trade, Finance and Business at Yale University since July 1, 2005, having served as the Dean of the Yale School of Management since 1995) March 2009 “The Dangers of Turning Inward” http://www.business.illinois.edu/aguilera/Teaching/WSJ09\_Dangers\_of\_Turning\_Inward.pdf

The last time we saw sustained economic nationalism was in the 1930s, when capital flows and trade among countries collapsed, and every country went its own way. World growth went into a ditch, political ties among nations deteriorated, nationalism and populism combined to create fascist governments in Europe and Asia, and a world war took place. It took at least a generation for globalization to get back on track. There have been some bouts of inwardlooking governmental action since then, such as the early 1970s when the U.S. cut the dollar from its gold base and imposed export embargoes on soybeans and steel scrap. However, the economic conditions were not sufficiently bad for the trend to sustain itself. The kind of economic nationalism we are seeing today is not yet extreme. It is also understandable. The political pressures could hardly be worse. Over the last decade, the global economy grew on average about 4% to 5%, and this year it will come to a grinding halt: 0.5% according to the International Monetary Fund, where projections usually err on the optimistic side. World trade, which has grown much faster than global gross domestic product for many years, is projected to decline this year for the first time since 1982. Foreign direct investment last year slumped by 10% from 2007. Most dramatically, capital flows into emerging market nations are projected to drop this year by nearly 80% compared to 2007. The aggregate figures don't tell the story of what is unraveling in individual countries. In the last quarter of 2008, U.S. GDP dropped by 6.2% at an annual rate, the U.K. by 5.9%, Germany by 8.2%, Japan by 12.7% and South Korea by 20.8%. Mexico, Thailand and Singapore and most of Eastern Europe are also in deep trouble. In every case, employment has been plummeting. So far popular demonstrations against government policies have taken place in the U.K., France, Greece, Russia and throughout Eastern Europe. And the governments of Iceland and Latvia have fallen over the crisis. Governments could therefore be forgiven if they are preoccupied above all with the workers and companies within their own borders. Most officials don't know what to do because they haven't seen this level of distress before. They are living from day to day, desperately improvising and trying to hold off political pressure to take severe measures they know could be satisfying right now but cause bigger damage later. Thinking about how their policies might affect other countries is not their main focus, let alone taking the time to try to coordinate them internationally. Besides, whether it's in Washington, Brussels, Paris, Beijing, Brazilia or Tokyo, it is hard to find many top officials who wouldn't say that whatever measures they are taking that may undermine global commerce are strictly temporary. They all profess that when the crisis is over, they will resume their support for globalization. They underestimate, however, how hard it could be to reverse course. Political figures take comfort, too, from the global institutions that were not present in the 1930s -- the IMF, the World Bank and the World Trade Organization, all of which are assumed to be keeping globalization alive. This is a false sense of security, since these institutions are guided by sovereign countries. Government officials often feel that because they are going to endless crisis summit meetings -- the next big one is in London on April 2, when the world's top 20 nations will be assembling -- that some international coordination is actually taking place. This is mostly an illusion. With a few exceptions, such as the so-called Plaza Agreements of 1984 when currencies were realigned, it is difficult to point to a meeting where anything major has been said and subsequently implemented. But as the pressure on politicians mounts, decisions are being made on an incremental and ad hoc basis that amounts to a disturbing trend. Classic trade protectionism is on the rise. In the first half of 2008, the number of investigations in the World Trade Organization relating to antidumping cases -- selling below cost -- was up 30% from the year before. Washington has recently expanded sanctions against European food products in retaliation for Europe's boycott against hormonetreated American beef -- an old dispute, to be sure, but one that is escalating. In the last several months, the E.U. reintroduced export subsidies on butter and cheese. India raised tariffs on steel products, as did Russia on imported cars. Indonesia ingenuously designated that just a few of its ports could be used to import toys, creating a trade-blocking bottleneck. Brazil and Argentina have been pressing for a higher external tariff on imports into a South American bloc of countries called Mercosur. Just this week, the E.U. agreed to levy tariffs on American exports of biodiesel fuel, possibly a first shot in what may become a gigantic trade war fought over different environmental policies -- some based on taxes, some on regulation, some on cap and trade -- being embraced by individual countries. Much bigger problems have arisen in more non-traditional areas and derive from recent direct intervention of governments. The much-publicized "Buy America" provision of the U.S. stimulus package restricts purchases of construction-related goods to many U.S. manufacturers, and although it is riddled with exceptions, it does reveal Washington's state of mind. The bailout of GM and Chrysler is a purely national deal. Such exclusion against foreign firms is a violation of so-called "national treatment" clauses in trade agreements, and the E.U. has already put Washington on notice that it will pursue legal trade remedies if the final bailout package is discriminatory. Uncle Sam is not the only economic nationalist. The Japanese government is offering to help a broad array of its corporations -- but certainly not subsidiaries of foreign companies in Japan -- by purchasing the stock of these firms directly, thereby not just saving them but providing an advantage over competition from non-Japanese sources. The French government has created a sovereign wealth fund to make sure that certain "national champions," such as carparts manufacturer Valeo and aeronautics component maker Daher, aren't bought by foreign investors. Government involvement in financial institutions has taken on an anti-globalization tone. British regulators are pushing their global banks to redirect foreign lending to the U.K. when credit is sorely needed and where it can be monitored. Just this past week, the Royal Bank of Scotland announced it was closing shop in 60 foreign countries. Western European banks that were heavily invested in countries such as Hungary, the Czech Republic and the Baltics have pulled back their credits, causing a devastating deflation throughout Eastern Europe. The Swiss are reportedly considering more lenient accounting policies for loans their banks make domestically as opposed to abroad. This de-globalizing trend could well be amplified by Washington's effort to exercise tight oversight of several big financial institutions. Already AIG's prime Asian asset, American International Assurance Company, is on the block. As the feds take an ever bigger stake in Citigroup, they may well force it to divest itself of many of its prized global holdings, such as Banamex in Mexico and Citi Handlowy in Poland. It appears that new legislation under the Troubled Asset Relief Program will also restrict the employment of foreign nationals in hundreds of American banks in which the government has a stake. Whether or not it goes into bankruptcy, General Motors will be pressed to sell many of its foreign subsidiaries, too. Even Chinese multinationals such as Haier and Lenovo are beating a retreat to their own shores where the risks seem lower than operating in an uncertain global economy. The government in Beijing is never far away from such fundamental strategic decisions. Then there is the currency issue. Economic nationalists are mercantilists. They are willing to keep their currency cheap in order to make their exports more competitive.China is doing just that. A big question is whether other Asian exporters that have been badly hurt from the crisis -- Taiwan, South Korea and Thailand, for example -- will follow suit. Competitive devaluations were a major feature of the 1930s. It's no accident that the European Union has called an emergency summit for this Sunday to consider what to do with rising protectionism of all kinds. There are a number of reasons why economic nationalism could escalate. The recession could last well beyond this year. It is also worrisome that the forces of economic nationalism were gathering even before the crisis hit, and have deeper roots than most people know. Congress denied President Bush authority to negotiate trade agreements two years ago, fearing that America was not benefiting enough from open trade, and an effort to reform immigration was paralyzed for years. Globally, international trade negotiations called the Doha Round collapsed well before Bear Stearns and Lehman Brothers did. Concerns that trade was worsening income distribution were growing in every major industrial nation since the late 1990s. Whenever countries turned inward over the past half-century, Washington was a powerful countervailing force, preaching the gospel of globalization and open markets for goods, services and capital. As the Obama administration works feverishly to fire up America's growth engines, patch up its financial system and keep its housing market from collapsing further, and as its major long-term objectives center on health, education and reducing energy dependence on foreign sources, the country's preoccupations are more purely domestic than at any time since the 1930s. In the past, American business leaders from companies such as IBM, GE, Goldman Sachs and, yes, Citigroup and Merrill Lynch beat the drum for open global markets. As their share prices collapse, some voices are muted, some silenced. It is not easy to find anyone in America who has the stature and courage to press for a more open global economy in the midst of the current economic and political crosswinds. And given that the global rot started in the U.S. with egregiously irresponsible lending, borrowing and regulation, America's brand of capitalism is in serious disrepute around the world. Even if President Obama had the mental bandwidth to become a cheerleader for

#### Growth differential controls the internal link to conflict.

Dr. Stephen M. Walt (professor of international affairs at Harvard, professor of political science at the University of Chicago, assistant professor of politics and international affairs at Princeton, guest scholar at Brookings, associate at Carnegie Endowment for International Peace) 2002 “American Primacy,” Naval War College Review, Spring 2002

A second consequence of U.S. primacy is a decreased danger of great-power rivalry and a higher level of overall international tranquility. Ironically, those who argue that primacy is no longer important, because the danger of war is slight, overlook the fact that the extent of American primacy is one of the main reasons why the risk of great-power war is as low as it is. For most of the past four centuries, relations among the major powers have been intensely competitive, often punctuated by major wars and occasionally by all-out struggles for hegemony. In the first half of the twentieth century, for example, great-power wars killed over eighty million people. Today, however, the dominant position of the United States places significant limits on the possibility of great-power competition, for at least two reasons. One reason is that because the United States is currently so far ahead, other major powers are not inclined to challenge its dominant position. Not only is there no possibility of a “hegemonic war” (because there is no potential hegemon to mount a challenge), but the risk of war via miscalculation is reduced by the overwhelming gap between the United States and the other major powers. Miscalculation is more likely to lead to war when the balance of power is fairly even, because in this situation both sides can convince themselves that they might be able to win. When the balance of power is heavily skewed, however, the leading state does not need to go to war and weaker states dare not try.

## 2AC accidents - no meltdowns

#### Nuclear accidents are black swans – energy is much more damaging in the squo.

Elaine Hirsch, 2-1-2012, a jack-of-all-interests, from education to technology to public policy, so she is currently working as a writer for various education-related sites, Brave New Climate, “Black Swan theory and the anti-nuclear sentiment,” <http://bravenewclimate.com/2012/02/01/black-swan-anti-nuclear/>

Black Swan Theory, as explained by Nassim Nicholas Taleb in his 2007/2010 book, The Black Swan, describes an event which is a disproportionally-rare occurrence, is unpredictable, but has a high-impact when it does occur. According to Taleb, Black Swan events include the September 11 attacks, the rise of the Internet, World War I and the development of the personal computer. As a result, the event’s non-predictability causes behavioral/psychological changes within people, especially ones who adhere to the scientific method for identifying events. Statistically speaking, these outliers pay a disproportionate role in public opinion and public policy. Critics of nuclear energy point to the destructive capabilities of failed reactors and long-lasting effects of radioactive energy as reasons of pessimism. According to USA Today, the Union of Concerned Scientists cited “serious safety problems” that plague U.S. Nuclear plants as a main reason for halting nuclear energy programs. Of course, nuclear breakdowns certainly are possible. The most recent example is the Fukushima Daiichi nuclear crisis in Japan on March 11, 2011, in which three workers died\*. A steam explosion at Mihama Nuclear Power Plant in Fukui Prefecture in Japan killed four workers and injured seven more. A severely-corroded control rod forced a 24-month closure of the Davis-Besse reactor in Oak Harbor, Ohio beginning February 2002. The radioactive aftermath of the Chernobyl disaster of 1986 continues to plague the area, with a large exclusion zone remaining in force. Proponents of nuclear power plants point to the safety measures already in place and attempts to increase the safety of nuclear energy. Safety systems at nuclear power plants include the reactor protection system (RPS), essential service water system (ESWS), emergency cooling system (ECS), emergency electrical systems (ECS), containment systems, standby gas treatment and ventilation and radiation protection. All of these systems work to immediately stop the nuclear reaction in case of an emergency. The RPS terminates the nuclear reaction, stopping the production of heat, so that other systems can remove decay heat from the reactor’s core. Not all heat removal systems exist in all nuclear reactors. Every nuclear reactor has some combination of systems to remove decay heat from the core. In evaluating whether Black Swan Theory contributes to the anti-nuclear sentiment, one must consider whether such events were isolated outliers or part of a larger trend in nuclear energy. The Fukushima Daiichi disaster was unpredictable. This accident occurred after Japan suffered the worst earthquake in recorded history, which resulted in the malfunction of the nuclear reactor Most nuclear experts would have agreed, before the fact, that if such an impact occurred in the location where it did occur, a nuclear accident would result. Of course, even the best technologies at our disposal today cannot predict all of the effects that earthquakes can cause. Variables such as urban layouts vary across the world, and in these cases, only hindsight is 20/20.The Mihama and Oak Harbor incidents were results of human error, not the inherent danger of nuclear energy. The Mihama Nuclear Power Plant accident was a steam, not a nuclear, accident. The burst pipe had not been replaced or even checked for corrosion in 27 years. In Oak Harbor, Ohio, corrosion on a control rod could have, and should have, been both predicted and addressed long before the point at which the plant had to be shut down for two years. The Statistics Britain’s Health and Safety Executive has stated that there is a “million to one chance of an accident at a nuclear power plant killing people living nearby,” and that “such a level would equate to the average annual risk of dying in a traffic accident.” A report from the Nuclear Energy Agency of the Organization for Economic Co-Operation and Development (OECD) states, “For OECD countries, frequency-consequence curves show that the risk of a nuclear accident with more than 100 latent fatalities is a factor of ten or more lower than the risk of an accident with 100 immediate fatalities from coal, oil, natural gas or hydro energy chains, and almost a factor of one thousand lower than the risk from liquefied petroleum gas (LPG).”As the statistics show, well-managed nuclear programs pose less risk than other programs which we view as “safe”. The best way to change public opinion about the likelihood of nuclear accidents is to make more information available not only about the safety procedures in nuclear reactors, but also about the true causes of recent nuclear accidents—failure to arrest corrosion in two cases and an overwhelming natural disaster in the third case. Only by doing so will humans be able to driven by reliable statistics instead of the black shroud of the black swan.

#### No repeat of Fukushima – redundant safety features and layered vessels.

Charles E. Till & Yoon Il Chang, 2011, longtime Associate Laboratory Director for Engineering Research at Argonne National Laboratory, directed civilian nuclear power reactor development at Argonne National Laboratory, PhD Engineering, Specialty Reactor Physics, Imperial College, University of London, National Research Council of Canada, United Kingdom Atomic Energy Authority , Fellow of the American Nuclear Society, awarded the Walker Cisler Medal, National Academy of Engineering, was at Argonne National Laboratory, General Manager of the Integral Fast Reactor Program, Associate Laboratory Director for Engineering Research, Interim Laboratory Director, Argonne Distinguished Fellow, Currently he also serves as the Chair of IAEA’s Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management, was awarded the U.S. Department of Energy’s prestigious E.O. Lawrence Award, a Fellow and a recipient of the Walker Cisler Medal of American Nuclear Society, M.E. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Science from The University of Michigan, Science Council for Global Initiatives (SCGI), Plentiful Energy: The Story of the Integral Fast Reactor, p. 140

Each system is safety-grade, a high standard of quality with increased attention to quality and correspondingly greater expense, and each has a back-up system in the event of failures. The backup systems, normally idle, are continuously monitored, inspected, and periodically tested to ensure readiness. There is an independently powered and instrumented reactor shutdown system, a safety-grade emergency heat removal system to remove decay heat by natural circulation after shutdown, a second independent off-site power connection, and a safety-grade on-site emergency power supply. The third level provides additional protection to the public for accidents that are not expected to happen ever, and for accidents that were not foreseen when the plant was designed. A second vessel surrounding the vessel containing the reactor core, called the “guard vessel,” will catch primary coolant from any breach of the primary coolant system. It is sized to ensure that the reactor core remains covered with sodium coolant so it will be cooled by the emergency heat removal system even if the primary reactor vessel fails. If primary coolant leaks into the reactor building air atmosphere, or if failures of the cladding and the primary system barriers lead to release of gaseous fission products, the reactor building itself is designed to contain any radioactivity. (It might be noted here that the hydrogen explosions that damaged the Japanese reactor buildings after the quake could not happen to the IFR as the sodium coolant and structures contain no hydrogen, no H2O as in an LWR.)

#### Even if containment is breached there is no impact.

Charles Forsberg, 4-28-2011, is the Executive Director for the MIT Nuclear Fuel Cycle Study, Director and principle investigator for the MIT Fluoride Salt-Cooled High-Temperature Reactor Project, and the Idaho National Laboratory University Lead for Hybrid Energy Systems, Bulletin of the Atomic Scientists, “Mutually assured energy independence,” <http://www.thebulletin.org/web-edition/roundtables/nuclear-energy-different-other-energy-sources#rt8911>

The high energy density of uranium not only makes it an affordable option for countries seeking energy independence, but also produces relatively small quantities of waste. Relative to the price of electricity, radioactive waste from power plants can be disposed of in geologic repositories at low cost; currently, this technology is used to dispose of hazardous chemical waste in Europe, and defense-related transuranic radioactive waste at the US Energy Department's Waste Isolation Pilot Plant in New Mexico. With energy sources such as coal and gas, it is not possible to dispose of all waste -- there is simply too much of it. Nuclear energy's environmental impacts can be more closely monitored than the impacts of other energy sources, because it's easy to measure radioactivity at orders of magnitude below the levels hazardous to human health. The ability to detect radioactive contamination cheaply and quickly -- and thus avoid it -- is why no one has died of radiation in the Japanese accident; why the public health effects will be small; and why the Japanese will be able to fully clean up after the accident. If measurements could be taken of the hazardous fallout from a chemical-plant fire, or the mercury emitted by coal-fired power plants, there would be a public outcry as those contaminants spread around the world. Hazardous non-radioactive fallout is noticeable, however, only when large numbers of people are visibly sickened. People are content to let scientists and epidemiologists sort out why some communities have high cancer levels -- and whether chemical fallout might be responsible.

## 2AC consumption

#### Util inevitable and good.

Joseph S. Nye, 1986, Phd Political Science Harvard. University; Served as Assistant Secretary of Defense for International Security Affairs; “Nuclear Ethics,” pg. 18-19

The significance and the limits of the two broad traditions can be captured by contemplating a hypothetical case.34 Imagine that you are visiting a Central American country and you happen upon a village square where an army captain is about to order his men to shoot two peasants lined up against a wall. When you ask the reason, you are told someone in this village shot at the captain's men last night. When you object to the killing of possibly innocent people, you are told that civil wars do not permit moral niceties. Just to prove the point that we all have dirty hands in such situations, the captain hands you a rifle and tells you that if you will shoot one peasant, he will free the other. Otherwise both die. He warns you not to try any tricks because his men have their guns trained on you. Will you shoot one person with the consequences of saving one, or will you allow both to die but preserve your moral integrity by refusing to play his dirty game? The point of the story is to show the value and limits of both traditions. Integrity is clearly an important value, and many of us would refuse to shoot. But at what point does the principle of not taking an innocent life collapse before the consequentialist burden? Would it matter if there were twenty or 1,000 peasants to be saved? What if killing or torturing one innocent person could save a city of 10 million persons from a terrorists' nuclear device? At some point does not integrity become the ultimate egoism of fastidious self-righteousness in which the purity of the self is more important than the lives of countless others? Is it not better to follow a consequentialist approach, admit remorse or regret over the immoral means, but justify the action by the consequences? Do absolutist approaches to integrity become self-contradictory in a world of nuclear weapons? "Do what is right though the world should perish" was a difficult principle even when Kant expounded it in the eighteenth century, and there is some evidence that he did not mean it to be taken literally even then. Now that it may be literally possible in the nuclear age, it seems more than ever to be self-contradictory.35 Absolutist ethics bear a heavier burden of proof in the nuclear age than ever before.

#### Representations theory cannot be applied to policymaking.

Joshua Teitelbaum & Meir Litvak, March 2006, is Senior Fellow, Moshe Dayan Center for Middle East and African Studies, Tel Aviv University, and Adjunct Senior Lecturer in the Department of Middle Eastern History, Bar Ilan University is Senior Fellow at the Moshe Dayan Center for Middle East and African Studies, and Senior Lecturer in the Department of Middle Eastern and African History, Tel Aviv University. Dr. Teitelbaum began his studies at UCLA in 1976; Dr. Litvak began his at Tel Aviv University in 1980. In this article, they reflect on the influence of Said's Orientalism throughout their years of studying and teaching about Islam and the Middle East. “STUDENTS, TEACHERS, AND EDWARD SAID: TAKING STOCK OF ORIENTALISM,” online

Said's focus on Orientalism as a discourse of power, and apparently his background as a literary critic (and not as a historian), led him to argue that the "things to look at are style, figures of speech, setting, narrative devices, historical and social circumstances, not the correctness of the representation nor its fidelity to some great original." In other words: "The phenomenon of Orientalism as I study it here deals principally, not with a correspondence between Orientalism and the Orient, but with the internal consistency of Orientalism and its ideas about the Orient...despite or beyond any correspondence, or lack thereof, with a ‘real' Orient."[47] This approach, which is largely influenced by the post-modern discourse popular in the field of literary criticism--Said's primary expertise--leads him to ignore the possibility that representation includes reliable and precise information as well. He never analyzes profoundly or refutes the Middle Eastern studies literature, he merely argues over its style and motives. Halliday, as a positivist scholar who believes that historical reality is the important factor and not simply representation, doubts whether the discourse criticism in literature can be used for social sciences as well and questions whether historical research can be treated like literary analysis. Halliday even argues that Said's basic approach is similar to those whom Said accuses of "Orientalism," since both put a priority on what is termed (in different theoretical frameworks) ideology, discourse, or political culture.[48]

#### Psychological ties to consumption ensures radical elimination will cause conflict.

Alejandro Nadal, 2010, Professor at the Centre for Economic Studies of El Colegio de Mexico, “Is De-Growth Compatible With Capitalism?,” <http://triplecrisis.com/is-de-growth-compatible-with-capitalism/>

The problem with this perspective is that the cause of growth becomes psychological, a question of mentalities and even fashion. The idea that growth could originate from endogenous forces in capitalist economies is ignored. Growth is not only a cultural phenomenon or a feature of a maniac mentality. It is the direct consequence of how capitalist economies operate. This is true of capitalism as it operated in Genoa in the sixteenth century, and it is true today with the mega-corporations that rule global markets. The purpose of capital is to produce profits without end, that’s the meaning of its particular form of circulation. Its purpose is not to produce useful things or useless stuff, its object is to produce profits without end and produce more capital. This is the engine of accumulation and it is fuelled by inter-capitalist competition. In the words of Marx’s Grundrisse, “Conceptually, competition is nothing other than the inner nature of capital, its essential character, appearing in and realized as the reciprocal interaction of many capitals with one another, the inner tendency [presents itself] as external necessity. Capital exists and can only exist as many capitals, and its self-determination therefore appears as their reciprocal interaction with one another.” By the forces of competition, “capital is continuously harassed: March! March!” Thus, Marx’s analysis shows convincingly that capital can only exist as private centres of accumulation that are driven by (inter-capitalist) competition. This is why, in its quest to expand and survive (as an independent centre of accumulation) capital is continuously opening new spaces for profitability: new products, new markets. The corollary of this is that the only way in which we can get rid of “growth mania” is by getting rid of capitalism. It is not possible to have capitalism without growth. Is there a technological fix out of this? In other words, can we have such an efficient technological infrastructure (in buildings, energy and transport systems, manufacturing, etc.) that even with growth the ecological footprint could be reduced? This remains to be seen, but one phenomenon seems to conspire against this: the rebound effect. As technologies become more efficient and unit costs become smaller, consumption increases. Either existing consumers deepen their consumption, or more people have access to the objects or services being put on the marketplace. The end result is that the positive effects of greater efficiency are cancelled by deepening consumption rates. And let’s not forget what happens when consumption stops or slows down: those centres of accumulation cannot sell their commodities, inventories grow, unemployment soars and we have recessions, depressions and crises. From the side of production, for those individual centres of accumulation every gadget, every nook and cranny in the world, or any vast expanse of geographical space is a space waiting to be occupied for profits. From pep pills to tranquilizers, food and water, health and even genetic resources or nano-materials, to the anxious eyes of capital all of these dimensions are but spaces for profitability. Talk about investing in “natural capital” as a way out to the dilemma is devoid of any sense. It could very well be that, in the words of Richard Smith we either save capitalism or save ourselves, we cannot do both

#### Their cards don’t assume the world of the aff – IFRs transform economic and geopolitical paradigms – creating new methods of sustainable consumption.

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

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

#### Consumption is a human necessity – sustainable forms of consumption are necessary to provide value to life.

Richard Wilk, 2002, Ph.D. in Anthropology, University of Arizona, Provost Professor of Anthropology, “Consumption, human needs, and global environmental change,” <http://ac.els-cdn.com.proxy.lib.umich.edu/S0959378001000280/1-s2.0-S0959378001000280-main.pdf?_tid=9e9d844ccd262ce7cb72228cb6867674&acdnat=1340735574_f26d14ee6db898338b27786d06d8d816>

There have been several excellent reviews of consumption theory recently, which note the diversity and complexity of work in a number of disciplines (e.g. Berger, 1992; Miller, 1994). I have reduced this diversity into three basic categories for the sake of clarity (based on a more thorough treatment in Wilk, 1996). Each type of theory is grounded in fundamental (and untested) assumptions about human nature, and is connected to deep philosophical issues about the causes of human behavior, as well as methodologies for studying people. This is why it is so important to bring these assumptions out and make them clear at the beginning. Individual choice theories seek the basis for consumption within the individual, through the mechanism of the satisfaction of needs. Psychological approaches may trace needs to the process of personality formation, early family interactions, and the actualization of adulthood. Consumption may then be cast as either pathological aberration or healthy means of objectification and individuation. A classic example is the work of Csikszentimihalyi and Rochberg-Halton (1981) which assigns a number of psychological functions to middleclass consumer goods, including self-expression, making a personal history, and providing security. From this standpoint, people need goods in anonymous and stressful modern societies in order to remain healthy and happy. Their basic needs are extended to new objects because of the pressure of advertising, which associates consumer goods with sex, status, self-respect and other fundamental human drives. Other scholars have used similar psychological theories to develop a distinction between individualist and collectivist cultures (e.g. Hofstede, 1980; Aaker and Williams, 1998). This psychological work converges with the recent spate of post-modern and reflexive theories of consumption, which concentrate on subjectivity, experience, identity and selfhood, and the creative and playful potential of consumer culture (e.g. Brown and Turley, 1997; Lash and Urry, 1994). The more materialist and economic branch of individual/ choice theory is based on ideas of rational choice and maximization of utility found in economics and economic psychology. Here people consume to maximize short-term satisfactions derived directly from goods themselves, though the model has been extended to include services, and the non-material satisfactions of social life, citizenship, and charity (Becker, 1981). Rational-choice theorists assume that consumption is the product of individual choice, driven by an internal hierarchy of needs. To summarize; individual choice theories are primarily concerned with consumption as needs-driven behavior. Needs are produced internal psychological and cognitive processes, leading to choices within a marketplace of possibilities. For adults, therefore, advertising and media should be seen mainly as a source of information, which people may use to make decisions, and persuasion that plays on basic psychological needs. But because children are still forming their personalities and needs, and lack the ability to tell good information from bad, they are seen as especially vulnerable to the media, and some form of protection is therefore needed.

#### Human intrusion into the environment is key to prevent massive suffering and extinction – the alternative collapses civilization.

Michael Berliner, 2006, the senior advisor to the Ayn Rand Archives, “On earth Day, Remember: If Environmentalism Succeeds, It Will Make Human Life Impossible,” http://www.capmag.com/article.asp?ID=4643

Earth Day approaches, and with it a grave danger faces mankind. The danger is not from acid rain, global warming, smog, or the logging of rain forests, as environmentalists would have us believe. The danger to mankind is from environmentalism. The fundamental goal of environmentalism is not clean air and clean water; rather, it is the demolition of technological/industrial civilization. Environmentalism's goal is not the advancement of human health, human happiness, and human life; rather, it is a subhuman world where "nature" is worshipped like the totem of some primitive religion. In a nation founded on the pioneer spirit, environmentalists have made "development" an evil word. They inhibit or prohibit the development of Alaskan oil, offshore drilling, nuclear power--and every other practical form of energy. Housing, commerce, and jobs are sacrificed to spotted owls and snail darters. Medical research is sacrificed to the "rights" of mice. Logging is sacrificed to the "rights" of trees. No instance of the progress that brought man out of the cave is safe from the onslaught of those "protecting" the environment from man, whom they consider a rapist and despoiler by his very essence. Nature, they insist, has "intrinsic value," to be revered for its own sake, irrespective of any benefit to man. As a consequence, man is to be prohibited from using nature for his own ends. Since nature supposedly has value and goodness in itself, any human action that changes the environment is necessarily immoral. Of course, environmentalists invoke the doctrine of intrinsic value not against wolves that eat sheep or beavers that gnaw trees; they invoke it only against man, only when man wants something. The ideal world of environmentalism is not twenty-first-century Western civilization; it is the Garden of Eden, a world with no human intervention in nature, a world without innovation or change, a world without effort, a world where survival is somehow guaranteed, a world where man has mystically merged with the "environment." Had the environmentalist mentality prevailed in the eighteenth and nineteenth centuries, we would have had no Industrial Revolution, a situation that consistent environmentalists would cheer--at least those few who might have managed to survive without the life-saving benefits of modern science and technology. The expressed goal of environmentalism is to prevent man from changing his environment, from intruding on nature. That is why environmentalism is fundamentally anti-man. Intrusion is necessary for human survival. Only by intrusion can man avoid pestilence and famine. Only by intrusion can man control his life and project long-range goals. Intrusion improves the environment, if by "environment" one means the surroundings of man--the external material conditions of human life. Intrusion is a requirement of human nature. But in the environmentalists' paean to "Nature," human nature is omitted. For environmentalism, the "natural" world is a world without man. Man has no legitimate needs, but trees, ponds, and bacteria somehow do. They don't mean it? Heed the words of the consistent environmentalists. "The ending of the human epoch on Earth," writes philosopher Paul Taylor in Respect for Nature: A Theory of Environmental Ethics, "would most likely be greeted with a hearty 'Good riddance!'" In a glowing review of Bill McKibben's The End of Nature, biologist David M. Graber writes (Los Angeles Times, October 29, 1989): "Human happiness [is] not as important as a wild and healthy planet . . . . Until such time as Homo sapiens should decide to rejoin nature, some of us can only hope for the right virus to come along." Such is the naked essence of environmentalism: it mourns the death of one whale or tree but actually welcomes the death of billions of people. A more malevolent, man-hating philosophy is unimaginable. The guiding principle of environmentalism is self-sacrifice, the sacrifice of longer lives, healthier lives, more prosperous lives, more enjoyable lives, i.e., the sacrifice of human lives. But an individual is not born in servitude. He has a moral right to live his own life for his own sake. He has no duty to sacrifice it to the needs of others and certainly not to the "needs" of the nonhuman. To save mankind from environmentalism, what's needed is not the appeasing, compromising approach of those who urge a "balance" between the needs of man and the "needs" of the environment. To save mankind requires the wholesale rejection of environmentalism as hatred of science, technology, progress, and human life. To save mankind requires the return to a philosophy of reason and individualism, a philosophy that makes life on earth possible.

#### The move to let beings be and stop all modes of production is ethically bankrupt.

Tom Blees, 2008, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, Prescription for the Planet, p. 124

This is illustrative of a general disconnect between scientific progress and the evolution of social consciousness. The advances of science seem to have outpaced humanity’s ability to adapt. Rather than encouraging people to examine pressing issues with logic and reason, an antagonistic anti-intellectualism has taken hold of many, certainly in America at least. So we find ourselves on the horns of a dilemma. On the one hand we have the seemingly unstoppable march of science, and on the other an anachronistic mindset more suited to life in the Dark Ages. The ensuing problems are exacerbated by the sheer volume of people on the planet, and that number is rising with appalling speed, lending an urgency to our environmental problems that might otherwise be somewhat postponed. Yet who is prepared to forgo the benefits of modern medicine in order to bring the critical population portion of our dilemma under control? This is not to say that many people wouldn’t be perfectly happy—or at least willfully oblivious—to withholding modern124medicine from others in geographically and culturally distant lands. Such an execrably inhumane attitude confronted me when I founded a nonprofit organization some years ago with the intention of drilling water wells in poor villages to prevent the dreadful rates of mortality from waterborne disease. I was frankly aghast at the number of seemingly normal people who, in one way or another, cast doubt upon the advisability of preventing the needless deaths of children in underdeveloped countries lest they survive to reproductive age and only add to our population dilemma. Let it be said that those who are unwilling to forgo the benefits of modern medicine, electricity, air travel, safe food and water, and all the other fruits of technology have no right to expect others to deny themselves those same things simply by dint of their nation of birth. Indeed, the well-documented link between an improvement in standard of living and population self-control would more logically lead us to attempt to spread both education and modernity to all corners of the earth. Such a course of action would most effectively address the population growth that is arguably one of the greatest developing crises in the history of our planet. It is the height of selfishness to countenance consigning billions of people to an inferior life so that the “civilized” nations can greedily pillage the world’s resources. Such a position, besides being ethically unconscionable, is based on outmoded thinking, as will be made clear in the pages to follow.

## 2AC CIR

#### CIR won’t pass now - piecemeal will get STEM visas inevitably.

Israel Ortega, 2-12-2013, Editor of Libertad.org and Spanish Media Associate at the Heritage Foundation, http://www.heritage.org/research/commentary/2013/2/zerosum-immigratio-policy

Anyone hoping to hear a more conciliatory speech than the inaugural address must have been disappointed to hear an equally argumentative President deliver this year’s State of the Union Address. Oblivious to a Republican-controlled House of Representatives, the president ticked off a laundry list of lofty progressive goals that are sure to placate his liberal base, but have little chance of being signed into law. Add immigration reform to the list unless the president drops his insistence on dealing with immigration policy in one gargantuan comprehensive bill. The president was right to talk about ways of streamlining legal immigration by reducing bureaucracy, but lumping in citizenship for the 11 million undocumented workers in a singular stand-alone bill will surely make the task more difficult where he knows even members of his own party are reluctant to vote in favor a bill that undermines the rule of law. (See Senate Democrats up for reelection next year in states that voted for Mitt Romney in last year’s presidential election). Consequently, policymakers need only look to Obamacare as an example of why Congress should consider a piecemeal approach and resist the urge to write another 1,000 page plus bill with numerous unintended consequences that will only compel lawmakers to make changes to existing law. The truth is that the President could find support in both chambers and by members of both parties on a number of specific policy proposals that also have the support of the American people. A good example of this would be our need for high-skilled immigrants in order to fill high-skilled jobs. To that end, just before the last Congress adjourned for the year, the Republican-led House of Representatives passed the STEM Jobs Act that would have eliminated the diversity visa program and would have reallocated up to 55,000 green cards to immigrant graduates of American universities with advanced degrees in science and technology with a vote of 245-139. Senate Democrats blocked the STEM Jobs Act and the White House opposed the legislation on the grounds that: “it does not meet the President’s long-term objectives with respect to comprehensive immigration reform.” Statements like this seem to suggest that the President may be more motivated by politics than looking to find consensus on this important issue. As Senator Chuck Schumer said at a recent breakfast hosted by Politico, there are some in his party that want to continue keeping immigration on the table as a wedge issue for political gain. The president should reject these partisan calls and exert leadership in order to find agreement where he is able, instead of doing nothing at all. This zero-sum approach is a disservice to our country of immigrants that is revitalized every time a naturalization ceremony takes place. We desperately need to take meaningful steps to improve our immigration system so that it works effectively and allows for increased legal immigration while discouraging illegal immigration.

#### CIR would only increase H-1B through a new commission.

Patrick Thibodeau, 1-4-2010, staff writer @ Computer World, House immigration bill woudl overhaul H-1B visa program, p. www.computerworld.com/s/article/346045/House\_Immigration\_Bill\_Would\_Overhaul\_H\_1B \_Visa\_Program

But this House bill, dubbed the Comprehensive Immigration Reform for America's Security and Prosperity Act, also incorporates parts of other bills that impose restrictions on H-1B use and call for tougher enforcement. The proposal would create a new, independent federal agency, to be called the Commission on Immigration and Labor Markets, that would establish "employment-based immigration policies that promote economic growth and competitiveness while minimizing job displacement, wage depression and unauthorized employment." In particular, the new agency would make recommendations to Congress about caps for H-1Bs and other types of visas.

#### That gets struck down by the Court.

NFAP (National Foundation for American Policy), May 2009, “A commission to regulate immigration? A bad idea whose time should not come,” Online

On top of all its other problems, the commission as proposed by Ray Marshall is likely unconstitutional. Under Buckley v. Valeo, the U.S. Supreme Court ruled that a legislative appointee cannot exercise executive branch authority. But that is what is envisioned for the commission proposed by Marshall. As noted, according to the book, Immigration for Shared Prosperity, “The chair and four other members would be chosen by the President, and remaining members would be chosen one each by House and Senate Democratic and Republican leaders.”18 Among the duties of these commission members would be to “set the conditions and numbers of the various visa categories” and potentially eliminate entire categories of visas.19 Elsewhere, Marshall writes, “The FWAC would recommend employment-based immigration levels, which would become law if Congress did not reject them.” In Buckley v. Valeo (1976), the U.S. Supreme Court struck down as unconstitutional the powers of the Federal Election Commission due, in part, to its members being appointed by Members of Congress. The decision cited the Disrict Court’s finding: The Commission's composition as to all but its investigative and informative powers violates Art. II, 2, cl. 2. With respect to the Commission's powers, all of which are ripe for review, to enforce the Act, including primary responsibility for bringing civil actions against violators, to make rules for carrying out the Act, to temporarily disqualify federal candidates for failing to file required reports, and to authorize convention expenditures in excess of the specified limits, the provisions of the Act vesting such powers in the Commission and the prescribed method of appointment of members of the Commission to the extent that a majority of the voting members are appointed by the President pro tempore of the Senate and the Speaker of the House, violate the Appointments Clause, which provides in pertinent part that the President shall nominate, and with the Senate's advice and consent appoint, all "Officers of the United States," whose appointments are not otherwise provided for, but that Congress may vest the appointment of such inferior officers, as it deems proper, in the President alone, in the courts, or in the heads of departments. Hence . . . the Commission, as presently constituted, may not because of that Clause exercise such powers, which can be exercised only by “Officers of the United States” appointed in conformity with the Appointments Clause, although it may exercise such investigative and informative powers as are in the same category as those powers that Congress might delegate to one of its own committees. Another case that may bear on the constitutionality of the Commission proposal is Bowsher v. Synar. A number of constitutional law experts consulted confirmed that the commission proposal as described in Ray Marshall’s book is unlikely to be upheld as constitutional given the Supreme Court precedents.

#### Cyber-terrorism is drastically exaggerated – no major attack has happened and 99 percent of hackers couldn’t inflict serious damage

USIP (United States Institute for Peace) December 2004 “Cyberterrorism How Real Is the Threat?” Cyberterrorism

How Real Is the Threat?

Amid all the dire warnings and alarming statistics that the subject of cyberterrorism generates, it is important to remember one simple statistic: so far, there has been no recorded instance of a terrorist cyberattack on U.S. public facilities, transportation systems, nuclear power plants, power grids, or other key components of the national infrastructure. Cyberattacks are common, but they have not been conducted by terrorists and they have not sought to inflict the kind of damage that would qualify them as cyberterrorism. Technological expertise and use of the Internet do not constitute evidence of planning for a cyberattack. Joshua Green (“The Myth of Cyberterrorism,” Washington Monthly, November 2002) makes this point after reviewing the data retrieved from terrorists in Afghanistan: When U.S. troops recovered al Qaeda laptops in Afghanistan, officials were surprised to find its members more technologically adept than previously believed. They discovered structural and engineering software, electronic models of a dam, and information on computerized water systems, nuclear power plants, and U.S. and European stadiums. But nothing suggested they were planning cyberattacks, only that they were using the Internet to communicate and coordinate physical attacks. Neither al Qaeda nor any other terrorist organization appears to have tried to stage a serious cyberattack. For now, insiders or individual hackers are responsible for most attacks and intrusions and the hackers’ motives are not political. According to a report issued in 2002 by IBM Global Security Analysis Lab, 90 percent of hackers are amateurs with limited technical proficiency, 9 percent are more skilled at gaining unauthorized access but do not damage the files they read, and only 1 percent are highly skilled and intent on copying files or damaging programs and systems. Most hackers, it should be noted, try to expose security flaws in computer software, mainly in the operating systems produced by Microsoft. Their efforts in this direction have sometimes embarrassed corporations but have also been responsible for alerting the public and security professionals to serious security flaws. Moreover, although there are hackers with the ability to damage systems, disrupt e-commerce, and force websites offline, the vast majority of hackers do not have the necessary skills and knowledge. The ones who do, generally do not seek to wreak havoc. Douglas Thomas, a professor at the University of Southern California, spent seven years studying computer hackers in an effort to understand better who they are and what motivates them. Thomas interviewed hundreds of hackers and explored their “literature.” In testimony on July 24, 2002, before the House Subcommittee on Government Efficiency, Financial Management and Intergovernmental Relations, Thomas argued that “with the vast majority of hackers, I would say 99 percent of them, the risk [of cyberterrorism] is negligible for the simple reason that those hackers do not have the skill or ability to organize or execute an attack that would be anything more than a minor inconvenience.” His judgment was echoed in Assessing the Risks of Cyberterrorism, Cyber War, and Other Cyber Threats, a 2002 report for the Center for Strategic and International Studies, written by Jim Lewis, a sixteen-year veteran of the State and Commerce Departments. “The idea that hackers are going to bring the nation to its knees is too far-fetched a scenario to be taken seriously,” Lewis argued. “Nations are more robust than the early analysts of cyberterrorism and cyberwarfare give them credit for. Infrastructure systems [are] more flexible and responsive in restoring service than the early analysts realized, in part because they have to deal with failure on a routine basis.” Many computer security experts do not believe that it is possible to use the Internet to inflict death on a large scale. Some pointed out that the resilience of computer systems to attack is the result of significant investments of time, money, and expertise. As Green describes, nuclear weapons systems are protected by “air-gapping”: they are not connected to the Internet or to any open computer network and thus they cannot be accessed by intruders, terrorists, or hackers. Thus, for example, the Defense Department protects sensitive systems by isolating them from the Internet and even from the Pentagon’s own internal network. The CIA’s classified computers are also air-gapped, as is the FBI’s entire computer system.

#### Won’t pass—

#### Border triggers.

David Grant, 3-27-2013, “How border security 'trigger' could stop immigration reform,” http://www.csmonitor.com/USA/DC-Decoder/2013/0327/How-border-security-trigger-could-stop-immigration-reform

How border security 'trigger' could stop immigration reform Congressional negotiators say immigration reform will need a border security 'trigger' to pass. But agreeing on what counts as 'border security' won't be easy, and could determine whether reform happens. Immigration reformers want to bring the more than 10 million undocumented immigrants out of the shadows. Border security hawks want assurances that if they go along with that plan, they won’t be back in 10 years deciding whether or not to legalize 10 million more. What’s Congress to do? Figure out a “trigger,” where advances in border security are deemed sufficient to trigger the beginning of the journey to citizenship for the undocumented already in the country. As immigration reform negotiations continue, determining just what counts as a “secure border” and how to link that to plans for the undocumented will be crucial. Indeed, finding an answer could determine whether a bipartisan immigration reform measure reaches President Obama’s desk or if 2013 is yet another disappointment for reformers. Historically, those on Capitol Hill have tried to craft a delicate balance between border security and a path to legal status for the undocumented. For example, the comprehensive immigration reform legislation of the George W. Bush years, which ultimately failed, had a series of triggers. In 2009, Sen. Chuck Schumer (D) of New York proposed more broadly that “operational control” of the border “must be achieved within a year of enactment of legislation.”

#### Delays coming over guest worker program.

David Nakamura, 3-28-2013 Washington Post “Guest-worker program dispute may delay immigration bill,” http://www.azcentral.com/news/politics/free/20130328immigration-reform-guest-worker-program-dispute-may-delay-bill.html

A bipartisan deal on immigration is at risk of stalling because of a worsening dispute over a new guest-worker program, exposing fault lines between crucial interest groups and threatening to delay the unveiling of a Senate bill early next month. The impasse has prompted a bitter round of name-calling between labor and business groups, both of whom accuse the other of imperiling comprehensive immigration reform. As the standoff has deteriorated, the Obama administration has remained on the sidelines and declined to intervene — a calculated decision that the president’s influence would risk alienating Republican senators crucial to the process. The dispute over a program for foreign workers has emerged as perhaps the most serious obstacle to a final deal from a bipartisan group of eight senators, who are attempting to fashion model legislation for broad immigration reform. The same issue helped derail the last serious attempt at reform in 2007 with help from Obama, then a U.S. senator from Illinois. The current talks center on rules governing the “future flow” of migrants who come to the United States for low-paying, menial jobs. Republicans, citing business interests, want to give temporary work visas to up to 400,000 foreign workers a year, mostly at minimum wages. But unions and many Democrats, fearing the impact on American workers, want fewer workers and higher pay under the program. Senators involved in the immigration talks insist they remain on schedule to complete a bill, including a path to citizenship for 11 million illegal immigrants, in early April. Obama also expressed confidence this week that the guest-workers disagreement could be solved. “I don’t agree that it’s threatening to doom the legislation,” Obama said in an interview Wednesday with Telemundo, the Spanish-language TV network. “Labor and businesses may not always agree exactly on how to do this, but this is a resolvable issue.” But behind the scenes, negotiations over the guest-worker program — and the White House’s refusal to take a position — have soured relations between the AFL-CIO and U.S. Chamber of Commerce, which only a month ago joined hands to publicly proclaim agreement on an overall plan.

#### That kills the bill – two reasons.

Ted Hesson, 3-28-2013, Reasons Why an Immigration Reform Timeline Matters” (ABC News), http://abcnews.go.com/ABC\_Univision/Politics/reasons-immigration-reform-timeline-matters/story?id=18822563#.UVPrYleVjIs

A group of Democrats and Republicans working on an immigration reform bill in the Senate will almost certainly miss a self-imposed March deadline to produce draft legislation. And yesterday, one of the groups foremost members, Sen. John McCain (R-Ariz.), cautioned that a bill might not come in early April, either. Why does the deadline matter? Here are three reasons. 1. Momentum The November presidential election -- where Obama housed Romney among Latinos, taking 71 percent of the vote -- got people in Washington talking about immigration reform as a way for the Republican party to win Latino voters. But that was five months ago, and political memory can be short. "Once the sting of the election starts to wear off a little bit, I think there's less of an impetus to act on this issue," said Marshall Fitz, immigration policy director at the liberal Center for American Progress. "You've got to act when the issue is fresh and everyone is very cognizant of the political implications...The political implications aren't going to change as we go further into this, but the calculus of the members may start to get obscured." 2. Deportations Lots of interests groups would like to see an immigration deal inked sooner than later, but no one group feels the pressure more than immigrants who are living in the country without authorization. Even while President Obama stumps for a path to citizenship for undocumented immigrants, his administration continues to deport record numbers of people, many of them for immigration-related offenses. A recent report in The New York Times found that on any given day, about 300 people in immigration detention are kept in solitary confinement, treatment that could have lasting psychological effects. "There is a sense that every day of delay is a day in which people continue to be deported who would otherwise be eligible for relief," Fitz said. "It's not like delay is the status quo. The delay is continued active harm on the community and on immigrant families." 3. Primaries If the so-called Senate "Gang of Eight" working on immigration reform is able to produce a bill in April, the Senate and House could feasibly vote and pass legislation before the August recess in Congress. But any further significant delay could jeopardize that timeline. If Congress continues to negotiate the bill in the fall, some Republican members of the House facing reelection in 2014 may be less likely to give their support, fearing a primary challenger who will use the issue as a political cudgel. "I think the House leadership feels like they've got to get this done and behind them by [the August recess] because their guys are going to be unwilling to take a tough vote after that," Fitz said.

#### Energy trust fund thumps.

Andrew Restuccia, 3-20-2013, “Energy Security Trust faces big sticking point,” Politico Pro, http://www.politico.com/story/2013/03/offshore-drilling-energy-plan-faces-roadblock-89098.html

President Barack Obama will face an uphill climb in Congress with his bipartisan proposal to steer offshore drilling revenue into research on green energy and natural gas, key observers signaled Tuesday. Their comments come just days after Obama used a speech at a national research laboratory to pitch his Energy Security Trust proposal, which he described as a plan to protect the public from high gasoline prices. A major sticking point: the administration’s unwillingness to expand drilling to areas like the Arctic National Wildlife Refuge, as Republicans have proposed. A former top energy aide to Sen. Lisa Murkowski (R-Alaska) cast doubt Tuesday on whether policymakers can come to an agreement given that gap. “If this gets translated somehow into new taxes on the oil and gas industry to then pay for this, I don’t believe it’s going to happen,” said McKie Campbell, a partner at BlueWater Strategies and a former Republican staff director of the Senate Energy and Natural Resources Committee. The money for the administration’s plan is going to have to come from somewhere, Campbell said. “There has to be more revenue or it’s deficit spending,” he said during a panel discussion hosted by Securing America’s Future Energy.

#### Obama push would kill any chance of CIR.

Alex Altman, 3-20-2013, “Four Hurdles That Could Block Immigration Reform,” Washington correspondent for TIME, http://swampland.time.com/2013/03/20/four-hurdles-that-could-block-immigration-reform/

Little discussed but also looming is the possibility that Democrats drag their feet on reform. Liberals will balk if the path to citizenship is too long or too onerous, or if enforcement provisions are too rigid. Many conservatives also suspect that Democratic power brokers, despite their daily hammering of Republicans to get moving on immigration reform, many would privately prefer to keep the issue as a cudgel than actually pass a law. Barack Obama “wants to make a bill come out of the Senate that is so far out there that it would never pass, so that he can blame us for not being compassionate and use the issue to take back the House in 2014,” says a House Republican. Even some liberals see this as a plausible scenario. “There’s always a lingering doubt in my mind,” admits one House Democrat. Obama knows that putting his fingerprints on the deal is an easy way to kill it; when a draft of his proposal leaked in the press, he called Republican negotiators individually to apologize. But if negotiations in Congress bog down, he may not be so hands off.

#### Plan popular—

#### The plan would be a political motivator for nuclear power development – solves the waste issue.

Barry Brook & Tom Blees, 10-23-2012, a leading environmental scientist, holding the Sir Hubert Wilkins Chair of Climate Change at the School of Earth and Environmental Sciences, and is also Director of Climate Science at the University of Adelaide’s Environment Institute, published three books, over 200 refereed scientific papers, is a highly cited researcher, received a number of distinguished awards for his research excellence including the Australian Academy of Science Fenner Medal, is an International Award Committee member for the Global Energy Prize, Australian Research Council Future Fellow, ISI Researcher, Ph.D., Macquarie University in Environmental Engineering, Science Council for Global Initiatives, Edgeworth David Medal Royal Society of NSW, Cosmos Bright Sparks Award, Tom Blees is the author of Prescription for the Planet, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, BraveNewClimate, “The Case for Near-term Commercial Demonstration of the Integral Fast Reactor,” <http://bravenewclimate.com/2012/10/23/the-case-for-near-term-commercial-demonstration-of-the-integral-fast-reactor/>

Light-water reactors (LWR) of any stripe, however, produce only a tiny fraction of the potential energy in uranium, less than 1%. Fast reactors, in contrast, unlock nearly all of it. The IFR, with its metal-fuel system and pyroprocessing, is able to utilize the actinides to such an extent as to essentially solve the waste problem by reducing the radiological toxicity of the waste products from hundreds of thousands of years to a mere few hundred years. Even if the “million-year problem” of LWR spent fuel is more a political than a technical challenge (given the small volume of the waste stream), nevertheless the issue of public perception of that issue is the one that guides nuclear policy in many countries [14]. As such, the transition to fast reactors and a closed nuclear fuel cycle is both a technical advancement and a political enabler for nuclear power of all kinds.

#### Democrats will use the plan as a bargaining chip to overcome opposition.

Mariah Blake, January/February 2010, is an editor at the Washington Monthly; her work has also appeared in Christian Science Monitor and Foreign Policy, Mother Jones, “The Bailout Goes Nuclear,” <http://www.motherjones.com/environment/2010/01/bailout-nuclear>

Key Senate Democrats have signaled that they are willing to use nuclear subsidies as a bargaining chip to overcome Republican opposition. The Nuclear Energy Institute (NEI), the industry's main lobby, is pushing for at least $100 billion in federal loan guarantees—a dicey proposition given that the Congressional Budget Office has determined that the risk of default would be "well above 50 percent." This raises the question: Will the cost of passing a climate bill be a massive, taxpayer-funded nuclear bailout? The public has rescued the industry once before. The last batch of reactors built in the US during the 1970s and '80s was plagued by a series of boondoggles, one of the most infamous being Long Island's Shoreham Nuclear Power Plant, which took 20 years to build and cost $6 billion—more than 80 times the original estimate—but was never put into commercial operation. Similar debacles pushed utilities into bankruptcy, triggered the largest municipal bond default in US history, and helped cause a sixfold increase in wholesale electricity prices. The total cost to the public, in rate hikes and taxpayer bailouts, was more than $300 billion (in 2006 dollars), according to the Union of Concerned Scientists. Since that time, the industry says it has solved its cost problem, partly by engineering reactors that are simpler and less expensive to build. But the first two next-generation reactors, which are under construction in Finland and France, have been bogged down in multibillion-dollar cost overruns. Meanwhile, the projected cost of building new nuclear plants in the US is soaring: As recently as 2005, the NEI claimed new reactors could be constructed for roughly $2 billion. Newer estimates, including one by Moody's, the credit ratings agency, put the cost as high as $12 billion. That would make nuclear power more expensive on a watt-for-watt basis than most large-scale renewable energy sources, including wind, biomass, and hydropower. No wonder the industry has found it impossible to secure private-sector financing for the 28 reactors that are currently in the pipeline across the nation. Investors "will not accept the economic risk of building new reactors," says Peter Bradford, a former member of the Nuclear Regulatory Commission who is now a professor at Vermont Law School. "There will be no nuclear renaissance beyond what the government is willing to underwrite. "No one understands this better than the industry itself, which is lobbying for a Senate bill to create a Clean Energy Deployment Administration (CEDA) within the Department of Energy (DOE) that would have the authority to award a virtually unlimited number of loan guarantees—without congressional review. "It's a nuclear slush fund," says Michele Boyd, director of Physicians for Social Responsibility's safe energy program, "though the way the bill is written, even many Senate staffers don't know it." The legislation, which is likely to be folded into the climate bill, was sponsored by Sen. Jeff Bingaman (D-N.M.) and crafted with the help of Sen. Lisa Murkowski (R-Alaska). Both lawmakers are top recipients of the nuclear industry's campaign largesse. Under the policy, companies would have to pay an as yet unspecified subsidy fee in order to get loan guarantees, but these payments are all but certain to be dwarfed by the cost of defaults. According to the Union of Concerned Scientists, if 100 new plants are built, as key Republican lawmakers have called for, the price of bad loans could total at least $360 billion—and that's assuming zero cost overruns. The ceda provision builds on the work of Sen. Pete Domenici (R-N.M.), who until his retirement in January 2009 was the Senate's most tireless nuclear crusader. During his reign as chairman of the energy committee from 2003 to 2007, he packed the committee staff with former nuclear-power lobbyists—a clique dubbed "the glow-in-the-dark crew" by some of their Senate colleagues—who shepherded through Congress the Energy Policy Act of 2005. Among other things, the bill provided $13 billion in nuclear subsidies and federal loan guarantees to cover 80 percent of the costs of building low-carbon nuclear technologies, including new reactors. For any other industry, this would have been an enormous victory. But for nuclear, even these generous subsidies weren't enough. In July 2007, six of the nation's largest financial firms—including Citigroup, Lehman Brothers, and Goldman Sachs, companies hardly averse to risky investments—informed the DOE in a letter that nuclear projects would not find financing because they were too chancy. Unless, of course, the agency (which had interpreted the new law to mean 80 percent of project debt) would rewrite the rules so that 100 percent of the debt was covered—foisting almost all of the risk on taxpayers. By the end of 2007, the nuclear lobby had succeeded in getting the DOE to make exactly these changes. But to the industry's dismay, Congress has so far given the DOE authority to distribute $18.5 billion in loan guarantees for nuclear power facilities. That's less than half what UniStar hopes to spend on its four plants, not to mention the needs of the industry at large. So the industry began pushing to increase the funding and simultaneously exempt the program from congressional oversight. Part of NEI's strategy for getting the feds to hand out loan guarantees more freely has been to win over Democrats—who have traditionally been less friendly to nuclear power—by enlisting the help of organized labor. In mid-2008, the group added Michael Mathis and Charles Harple, previously top in-house lobbyists for the International Brotherhood of Teamsters, to its K Street bench. NEI also forged an alliance with the AFL-CIO. At NEI's annual conference in 2008, Mark Ayers, the AFL-CIO's president of Building and Construction Trades, said that in exchange for the industry's commitment to use union labor, his organization would work to "persuade the new majority in Congress about the need for extending and increasing the loan guarantee program." The industry's efforts began to pay off this fall, as nuclear subsidies emerged as the key to wooing Republican votes for a Senate climate bill—votes necessary to offset defections from coal-state Democrats. Since October, Sen. John Kerry (D-Mass.), one of the climate bill's sponsors, has been holding closed-door meetings with Republicans to craft nuclear language. "You listen to the rhetoric around this place and there is no one who will say a disparaging word about nuclear," says a senior Democractic Senate staffer close to the climate bill talks. "They have enough political muscle and enough support across the aisle that I think they will get all the loan guarantees they need."

#### Loan guarantees specifically popular to both sides of the aisle because of lower tax liability.

Sharon Squassoni, November 2009, is a senior associate at the Carnegie Endowment for International Peace in the nonprolifera-tion program. Prior to joining Carnegie, she held various positions in the US government, including at the Congressional research Service, the Arms Control and Disarmament Agency, and the US State Department, is a frequent contributor to journals, magazines and books on nuclear proliferation and defense, The Centre for International Governance Innovation, No. 7, “The US Nuclear Industry: Current Status and Prospects under the Obama Administration,” p. 8, <http://www.carnegieendowment.org/files/Nuclear_Energy_7_0.pdf>

The single most important spur to build new reactors in the United States is loan guarantees. In fact, industry sources indicate they are so critical that new plants may not be built without them. These guarantees are attractive to the US Congress because they offer a way to influence markets and incentivize specific projects, and because they are “scored” as a lower liability for the taxpayer than the actual amount. Thus, a potential US$50 billion in loan guarantees could be scored by the Congressional Budget Office as only costing the taxpayer US$500 million. As originally proposed in the Energy Policy Act (EPACT) of 2005, loan guarantees would only have applied to nuclear power, but this was broadened to apply to a wide range of “innovative energy technologies,” including renewable energy technologies, which further extends their attractiveness within Congress.

#### Nuclear makes it distinct to Congress.

Jim Snyder, 9-14-2012, Bloomberg, “Republican-Led House Passes Bill to Block Energy Loans,” <http://www.bloomberg.com/news/2012-09-14/republican-led-house-passes-bill-to-block-energy-loans.html>

The U.S. House passed legislation to end an energy loan-guarantee program, the culmination of a Republican-led investigation into the collapse of solar-panel maker Solyndra LLC last year. The “No More Solyndras Act,” adopted by a 245-161 vote, wouldn’t immediately halt the loan program. It would prevent the Energy Department from considering applications for government backing submitted since Dec. 31. With $34 billion in loan authority remaining, Democrats said the bill would let nuclear- power projects favored by Republicans go forward.

#### Political capital theory not true, but winners-win is\*\*\*

Michael Hirsh, 2-7-2013, is chief correspondent for National Journal, he also contributes to 2012 Decoded, previously served as the senior editor and national economics correspondent for Newsweek, based in its Washington bureau, was also Newsweek’s Washington web editor and authored a weekly column for Newsweek.com, NationalJournal, “There’s No Such Thing as Political Capital,” <http://www.nationaljournal.com/magazine/there-s-no-such-thing-as-political-capital-20130207>

\*\*\*cites George Edwards, a presidential scholar at Texas A&M University, Richard Bensel, a government professor at Cornell University, and Norman Ornstein of the American Enterprise Institute\*\*\*

On Tuesday, in his State of the Union address, President Obama will do what every president does this time of year. For about 60 minutes, he will lay out a sprawling and ambitious wish list highlighted by gun control and immigration reform, climate change and debt reduction. In response, the pundits will do what they always do this time of year: They will talk about how unrealistic most of the proposals are, discussions often informed by sagacious reckonings of how much “political capital” Obama possesses to push his program through. Most of this talk will have no bearing on what actually happens over the next four years. Consider this: Three months ago, just before the November election, if someone had talked seriously about Obama having enough political capital to oversee passage of both immigration reform and gun-control legislation at the beginning of his second term—even after winning the election by 4 percentage points and 5 million votes (the actual final tally)—this person would have been called crazy and stripped of his pundit’s license. (It doesn’t exist, but it ought to.) In his first term, in a starkly polarized country, the president had been so frustrated by GOP resistance that he finally issued a limited executive order last August permitting immigrants who entered the country illegally as children to work without fear of deportation for at least two years. Obama didn’t dare to even bring up gun control, a Democratic “third rail” that has cost the party elections and that actually might have been even less popular on the right than the president’s health care law. And yet, for reasons that have very little to do with Obama’s personal prestige or popularity—variously put in terms of a “mandate” or “political capital”—chances are fair that both will now happen. What changed? In the case of gun control, of course, it wasn’t the election. It was the horror of the 20 first-graders who were slaughtered in Newtown, Conn., in mid-December. The sickening reality of little girls and boys riddled with bullets from a high-capacity assault weapon seemed to precipitate a sudden tipping point in the national conscience. One thing changed after another. Wayne LaPierre of the National Rifle Association marginalized himself with poorly chosen comments soon after the massacre. The pro-gun lobby, once a phalanx of opposition, began to fissure into reasonables and crazies. Former Rep. Gabrielle Giffords, D-Ariz., who was shot in the head two years ago and is still struggling to speak and walk, started a PAC with her husband to appeal to the moderate middle of gun owners. Then she gave riveting and poignant testimony to the Senate, challenging lawmakers: “Be bold.” As a result, momentum has appeared to build around some kind of a plan to curtail sales of the most dangerous weapons and ammunition and the way people are permitted to buy them. It’s impossible to say now whether such a bill will pass and, if it does, whether it will make anything more than cosmetic changes to gun laws. But one thing is clear: The political tectonics have shifted dramatically in very little time. Whole new possibilities exist now that didn’t a few weeks ago. Meanwhile, the Republican members of the Senate’s so-called Gang of Eight are pushing hard for a new spirit of compromise on immigration reform, a sharp change after an election year in which the GOP standard-bearer declared he would make life so miserable for the 11 million illegal immigrants in the U.S. that they would “self-deport.” But this turnaround has very little to do with Obama’s personal influence—his political mandate, as it were. It has almost entirely to do with just two numbers: 71 and 27. That’s 71 percent for Obama, 27 percent for Mitt Romney, the breakdown of the Hispanic vote in the 2012 presidential election. Obama drove home his advantage by giving a speech on immigration reform on Jan. 29 at a Hispanic-dominated high school in Nevada, a swing state he won by a surprising 8 percentage points in November. But the movement on immigration has mainly come out of the Republican Party’s recent introspection, and the realization by its more thoughtful members, such as Sen. Marco Rubio of Florida and Gov. Bobby Jindal of Louisiana, that without such a shift the party may be facing demographic death in a country where the 2010 census showed, for the first time, that white births have fallen into the minority. It’s got nothing to do with Obama’s political capital or, indeed, Obama at all. The point is not that “political capital” is a meaningless term. Often it is a synonym for “mandate” or “momentum” in the aftermath of a decisive election—and just about every politician ever elected has tried to claim more of a mandate than he actually has. Certainly, Obama can say that because he was elected and Romney wasn’t, he has a better claim on the country’s mood and direction. Many pundits still defend political capital as a useful metaphor at least. “It’s an unquantifiable but meaningful concept,” says Norman Ornstein of the American Enterprise Institute. “You can’t really look at a president and say he’s got 37 ounces of political capital. But the fact is, it’s a concept that matters, if you have popularity and some momentum on your side.” The real problem is that the idea of political capital—or mandates, or momentum—is so poorly defined that presidents and pundits often get it wrong. “Presidents usually over-estimate it,” says George Edwards, a presidential scholar at Texas A&M University. “The best kind of political capital—some sense of an electoral mandate to do something—is very rare. It almost never happens. In 1964, maybe. And to some degree in 1980.” For that reason, political capital is a concept that misleads far more than it enlightens. It is distortionary. It conveys the idea that we know more than we really do about the ever-elusive concept of political power, and it discounts the way unforeseen events can suddenly change everything. Instead, it suggests, erroneously, that a political figure has a concrete amount of political capital to invest, just as someone might have real investment capital—that a particular leader can bank his gains, and the size of his account determines what he can do at any given moment in history. Naturally, any president has practical and electoral limits. Does he have a majority in both chambers of Congress and a cohesive coalition behind him? Obama has neither at present. And unless a surge in the economy—at the moment, still stuck—or some other great victory gives him more momentum, it is inevitable that the closer Obama gets to the 2014 election, the less he will be able to get done. Going into the midterms, Republicans will increasingly avoid any concessions that make him (and the Democrats) stronger. But the abrupt emergence of the immigration and gun-control issues illustrates how suddenly shifts in mood can occur and how political interests can align in new ways just as suddenly. Indeed, the pseudo-concept of political capital masks a larger truth about Washington that is kindergarten simple: You just don’t know what you can do until you try. Or as Ornstein himself once wrote years ago, “Winning wins.” In theory, and in practice, depending on Obama’s handling of any particular issue, even in a polarized time, he could still deliver on a lot of his second-term goals, depending on his skill and the breaks. Unforeseen catalysts can appear, like Newtown. Epiphanies can dawn, such as when many Republican Party leaders suddenly woke up in panic to the huge disparity in the Hispanic vote. Some political scientists who study the elusive calculus of how to pass legislation and run successful presidencies say that political capital is, at best, an empty concept, and that almost nothing in the academic literature successfully quantifies or even defines it. “It can refer to a very abstract thing, like a president’s popularity, but there’s no mechanism there. That makes it kind of useless,” says Richard Bensel, a government professor at Cornell University. Even Ornstein concedes that the calculus is far more complex than the term suggests. Winning on one issue often changes the calculation for the next issue; there is never any known amount of capital. “The idea here is, if an issue comes up where the conventional wisdom is that president is not going to get what he wants, and he gets it, then each time that happens, it changes the calculus of the other actors” Ornstein says. “If they think he’s going to win, they may change positions to get on the winning side. It’s a bandwagon effect.”

# 1AR

## Dedev

### No impact to warming

#### Warming not real – satellite data, ice measurements, and weak correlation.

Randall Hoven, 5-3-2012, Boeing Technical Fellow, adjunct professor in the Engineering School of Southern Illinois University, Johns Hopkins University Applied Physics Laboratory, American Thinker, “Global Warming Melts Away,” <http://www.americanthinker.com/2012/05/global_warming_melts_away.html>

Correlating Temperature and CO2. The chart below shows global temperatures vs. measured atmospheric CO2. The data cover the years from 1959 through 2011. The correlation between CO2 and temperature is clear to the eye. The calculated correlation coefficient is 0.91. In blaming man's activities for global warming, this is as close to the "smoking gun" as it gets. A correlation coefficient of 0.91 appears high. But the correlation coefficient between temperatures and year is also a high 0.89. Simply put, both CO2 and temperatures went up over time. Inferring that CO2 is the cause of the temperature increase is a bit of a stretch. Anything that went up in that timeframe would have similar correlation. For example, here is another chart: global temperature anomaly vs. federal debt (in millions of dollars). The correlation coefficient between global temperature and U.S. federal debt is also 0.91. If you use correlation to convict CO2 of climate change, then federal debt is just as guilty. Even if you believe in the correlation-is-causation theory, that correlation has broken down recently. Look at the chart below. It shows that the correlation between CO2 and temperature has entirely disappeared in the last decade. In fact, the correlation is negative since 2002. What the data show. Whether you think the globe is getting warmer or not largely depends on your timeframe. If your timeframe is the entire time that modern temperature records have been kept, meaning since the 19th century, then the trend is indeed warming: about half a degree Celsius (about one degree Fahrenheit) per century. That is less than the difference in average July temperatures between Cape Hatteras and Charlotte, NC, for example. If your time frame is more recent, like the last 15 years, then no warming can be detected. In fact, the trend has been cooling for about the last dozen years. This is apparent in NASA's data, the U.K.'s Met Office data, and measurements of both Arctic and Antarctic sea ice. Indeed, Antarctic sea ice has been growing for the 32 years since satellite measurements have been available. The main link between man's activities and global temperatures, other than pure (all-else-equal) theory and assumption-filled computer programs, has been the correlation between measured atmospheric CO2 and measured temperatures. But that correlation suffers from at least two drawbacks: (1) correlation is not causation, and the correlation between federal debt and temperatures is just as strong and that between CO2 and temperatures. And (2) that correlation has broken down in the last decade, coinciding with the cooling trends in temperatures noted above. In short, the data show nothing alarming at all: very mild warming over the long term, and actual cooling over the short term. Please look at just one more chart, below. That chart is the global temperature anomaly as provided by the Hadley Center. Usually you might see it plotted on a scale that spans about one degree Celsius, making the trend look alarming. On this chart I chose the total vertical scale to match the difference in average June temperatures between Flagstaff and Yuma, Arizona (about 16 deg C).

### A2 Amazon deforestation

#### Warming wont affect rainforests or the Amazon.

Larry Bell, 1-11-2011, a professor of architecture and holds an endowed professorship in space architecture at the University of Houston. An internationally recognized commentator on scientific and public policy issues, written extensively on climate and energy policy and has been featured in many prominent national and international newspapers, magazines, and television programs, “Climate of Corruption: Politics and Power Behind The Global Warming Hoax” http://books.google.com/books?id=CS8-uzm3cvUC&dq=%22warming+%22+impacts+on+%22coral+reefs%22+exaggerated&lr=&source=gbs\_navlinks\_s

An ultimately embarrassing assertion in the ¡PCC’s 2007 AR4 report was that 40 per cent of the Amazon rain forest in South America is endangered by global warming. Those findings were based upon numbers taken from a non-peer-reviewed paper written by a freelance green activist journalist and published by the WWF. The paper warned that “up to 40 percent of the Amazon forests could react drastically to even a slight reduction of precipitation . . . It is more probable that forests will he replaced by ecosystems . . . such as tropical savannas.” The disaster would be triggered, according to the IPCC’s assessment, by a slight drop in the rainfall rates expected for a warming world. The original claim was based upon a WWF study, “Global Review of Forest Fires’ written “to secure essential policy reform at national and international levels to provide a legislative and economic base for controlling harmful anthropogenic forest fires:’ The 40 percent figure was taken from a letter published in the journal Nature, which related to harmful logging activities.55 Although the global warming—rain forest endangerment connection has been debunked by serious scientists, the IPCC has yet to retract or amend the claim. NASA-funded analyses of satellite imagery over past decades indicate that in fact the rain forests are remarkably resilient to droughts. Even during a 100-year dry season peak in 2007, the jungles appeared basically unaffected. Arindam Samanta of Boston University, lead author of a recent study based on satellite data from NASA’S Moderate Resolution Imaging Spectroradiometer. or MODIS, remarked, “We found no big differences in the greenness level of these forests between drought and non drought years Sangram Gangul) author of another study at the NASA-affiliated Bay Area Environmental Research Institute, added, “Our results certainly do not indicate such extreme sensitivity to reductions in rainfa1I.”

### A2 resource wars

#### No impact or link between climate change for resource wars.

Hans Günter Brauch, February 2008, Adj. Professor, Free University of Berlin, Otto-Suhr Institute, Berlin Fellow, Institute on Environment and Human Security of the United Nations University (UNU-EHS) in Bonn, Chairman, Peace Research and European Security Studies, ISA Peace Studies Section with Environmental Studies Section, “Securitizing Climate Change,” p. 8, Ebsco Host

However, their conflict definition excludes small-scale violence, e.g. tribal clashes between herders and resi-dent farmers, mass protests, e.g. in the Sahel zone to which many case studies refer (Kahl 2003, 2006; Suliman 1993, 1999), as well as food riots due to multiple causes. 6 Given the lack of both structured, focused, and comparable cases studies (George/Bennett 2005) addressing the complex causal chain and non-existing statistical research based on a large number of cases, it is premature to conclude whether and which causal linkages have existed between physical and social effects of climate change and their impacts on internal displacement, distress migration, domestic crises, and conflicts. Neither comparative case studies nor statistical research can analyse potential conflict constellations in vulnerable hot-spots and in a world where the average annual temperature has increased by 2°C (certain), or 4°C (probable) or even 6°C (possible under business as usual scenarios) by the year 2100. This requires both different methods (modelling, simulation, and scenario analysis) of non-linear interactions that may lead to tipping points of the climate system.

### Nuke war causes extinction

#### Nuclear war causes winter and extinction – scientific consensus. No study or simulation disproves nuclear winter.

Steven Starr, expert on nuclear weapons operating status and the predicted climatic effects of nuclear war and has studied extensively both these subjects and their implications for human society, MT American Society for Clinical Pathology, Member of International Network of Engineers and Scientists against Proliferation, PGS, “Catastrophic Climatic Consequences of Nuclear Conflict” January 2008

Nuclear detonations within urban and industrial areas would ignite immense mass fires which would burn everything imaginable and create millions of tons of thick, black smoke (soot). This soot would ultimately be lofted into the stratosphere. There it would absorb and block sunlight from reaching the lower atmosphere where greenhouse gases mainly reside, and thus act to reduce the greenhouse effect.4 The profound darkness and global cooling predicted to be result of this process (along with massive amounts of radioactive fallout and pyrotoxins5, and ozone depletion) was first described in 1983 as ‘nuclear winter’.6 Joint research by Western and Soviet scientists led to the realization that the climatic and environmental consequences of nuclear war, in combination with the indirect effects of the collapse of society, could produce a nuclear winter which would cause famine for billions of people far from the war zones.7 These predictions led to extensive international research and peer review during the mid- 1980’s. A large body of work which essentially supported the initial findings of the 1983 studies was done by such groups as the Scientific Committee on Problems of the Environment (SCOPE), the Swedish Academy of Science, the World Meteorological Organization, and the U.S. National Research Council. The idea of nuclear winter, published and supported by prominent scientists, generated extensive public alarm and put political pressure on the U.S. and the U.S.S.R. to terminate a runaway nuclear arms race which, by 1986, had created a global nuclear arsenal of more than 65,000 nuclear weapons. Unfortunately, this was anathema to the nuclear weapons establishment and thus nuclear winter created a backlash among many powerful conservative groups, who undertook an extensive media campaign to brand it as ‘bad science’ and the scientists who discovered it as ‘irresponsible’. Critics used various uncertainties in the studies and the first climate models (which are relatively primitive by current standards) as a basis to denigrate and reject the concept of nuclear winter. In 1986, the Council on Foreign Relations published an article by scientists from the National Center for Atmospheric Research (NCAR), who predicted drops in global cooling about half as large as those first predicted by the 1983 studies and described this as a ‘nuclear autumn’. Subsequent widespread criticism, in such publications as the Wall Street Journal and Time Magazine, often used the term ‘nuclear autumn’ to imply that no important climatic change would result from nuclear war. In 1987, the National Review called nuclear winter a “fraud”. In 1990, Discover Magazine published an article which described nuclear winter as one of “The Twenty Greatest Scientific Blunders in History”.8 Sadly enough, for almost two decades this smear campaign limited serious discussion and prevented further studies of nuclear winter – and such criticism will continue.9 (footnote) 9 <http://adamant.typepad.com/seitz/2006/12/preherein\_honor.html> Yet the basic findings of the nuclear winter research, that extreme climatic changes would result from nuclear war, were never scientifically disproved and have been strengthened by these latest studies.

### Nuke power solves warming

#### Solving electricity is the first step to solve climate change because without nuclear power warming is inevitable.

Barry Brook et. al, 2-21-2009, a leading environmental scientist, holding the Sir Hubert Wilkins Chair of Climate Change at the School of Earth and Environmental Sciences, and is also Director of Climate Science at the University of Adelaide’s Environment Institute, published three books, over 200 refereed scientific papers, is a highly cited researcher, received a number of distinguished awards for his research excellence including the Australian Academy of Science Fenner Medal, is an International Award Committee member for the Global Energy Prize, Australian Research Council Future Fellow, ISI Researcher, Ph.D., Macquarie University in Environmental Engineering, Science Council for Global Initiatives, Edgeworth David Medal Royal Society of NSW, Cosmos Bright Sparks Award, Tom Blees is the author of Prescription for the Planet, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, George S. Stanford is a nuclear reactor physicist, part of the team that developed the Integral Fast Reactor, PhD from Stanford University in Physics, Masters from University of Virginia in Engineering, worked at Argonne National Laboratory, Graham R.L. Cowan, "Boron: A Better Energy Carrier than Hydrogen?" in 2001, published "How Fire Can Be Tamed," BraveNewClimate, “Response to an Integral Fast Reactor (IFR) critique,” <http://bravenewclimate.com/2009/02/21/response-to-an-integral-fast-reactor-ifr-critique/>

[TB] Almost 80% of greenhouse gas emissions come from nuclear-capable countries anyway, so even if we just deployed them there we could make tremendous strides, though it would still be wise to create some sort of international oversight organization as I propose in the book. [BWB] This is at best grossly disingenuous (not to mention insulting to call Kirsch stupid). You need to solve the electricity carbon problem to fix the vehicular fuels problem, space heating and embedded energy in building and manufactured goods, and Tom has a solution for MSW [municipal solid waste] also. About half of agricultural emissions can also be solved if you have a zero-carbon energy source. Then you just need to worry about the ruminant methane and carbon from deforestation. But the bottom line is, if you fix electricity, everything else will quicktly start to fall into place. If we don’t stop coal in places like China and India, we’re hosed, irrespective of what we might do in the US and Oz (and even if we could do with without advanced nuclear, which we very likely cannot). I do wonder, what is Jim Green’s plan is for replacing the 484 GW of coal-fired power stations already installed in China, and the further 200 or so plants in the planning or construction pipeline?

#### The Aff can pull us back from the edge.

Steve Kirsch, 11-25-2009, M.S. Massachusetts Institute of Technology (MIT), writer for the Huffington Post, CEO Kirsch foundation on climate, founder/head of Center for Energy and Climate Change, National Award from the Caring Institute in Washington DC, written much about the Integral Fast Reactor, Fellow, with the Science Council for Global Initiatives (SCGI), Steve Kirsch’s blog, “Why We Should Build an Integral Fast Reactor Now,” <http://skirsch.wordpress.com/2009/11/25/ifr/>

\*\*\*cites Charles Till, former Associate Director, Argonne National Laboratory, The National Academy Studies, James Hansen, Director, NASA Goddard Institute for Space Studies, Ray Hunter, former Deputy Director of the Office of Nuclear Energy, Science and Technology in the U.S. Department of Energy (DOE), Leonard Koch, winner of the Global Energy International Prize, Barry Brook Sir Hubert Wilkins Chair of Climate Change\*\*\*

The bottom line is that without the IFR (or a yet-to-be-invented technology with similar ability to replace the coal burner with a cheaper alternative), it is unlikely that we’ll be able to keep CO2 under 450 ppm. Today, the IFR is the only technology with the potential to displace the coal burner. That is why restarting the IFR is so critical and why Jim Hansen has listed it as one of the top five things we must do to avert a climate disaster.[4] Without eliminating virtually all coal emissions by 2030, the sum total of all of our other climate mitigation efforts will be inconsequential. Hansen often refers to the near complete phase-out of carbon emissions from coal plants worldwide by 2030 as the sine qua non for climate stabilization (see for example, the top of page 6 in his August 4, 2008 trip report). To stay under 450ppm, we would have to install about 13,000 GWe of new carbon-free power over the next 25 years. That number was calculated by Nathan Lewis of Caltech for the Atlantic, but others such as Saul Griffith have independently derived a very similar number and White House Science Advisor John Holdren used 5,600 GWe to 7,200 GWe in his presentation to the Energy Bar Association Annual Meeting on April 23, 2009. That means that if we want to save the planet, we must install more than 1 GWe per day of clean power every single day for the next 25 years. That is a very, very tough goal. It is equivalent to building one large nuclear reactor per day, or 1,500 huge wind turbines per day, or 80,000 37 foot diameter solar dishes covering 100 square miles every day, or some linear combination of these or other carbon free power generation technologies. Note that the required rate is actually higher than this because Hansen and Rajendra Pachauri, the chair of the IPCC, now both agree that 350ppm is a more realistic “not to exceed” number (and we’ve already exceeded it). Today, we are nowhere close to that installation rate with renewables alone. For example, in 2008, the average power delivered by solar worldwide was only 2 GWe (which is to be distinguished from the peak solar capacity of 13.4GWe). That is why every renewable expert at the 2009 Aspen Institute Environment Forum agreed that nuclear must be part of the solution. Al Gore also acknowledges that nuclear must play an important role.

#### Tantamount in all cars.

Tony Pietrangelo , 7-28-2011, has 30 years’ experience in the nuclear energy industry, where his responsibilities have run the gamut of nuclear plant construction, licensing and operations, has been with the Nuclear Energy Institute (NEI) and its predecessor organizations since 1989, Bulletin of the Atomic Scientists, “Low-carbon, low-cost electricity 24/7,” <http://www.thebulletin.org/web-edition/roundtables/nuclear-energy-different-other-energy-sources#rt8911>

The nuclear energy industry understands why this independent oversight is necessary. Yet along with this scrutiny, we hope policymakers, scientists, and the general public will recognize the unique combination of benefits that nuclear energy provides: Significant reductions in carbon emissions: Each year, 104 US reactors avoid 650 million metric tons of carbon dioxide from entering our atmosphere, nearly as much as is released from all US passenger cars in operation. Germany's decision to turn away from nuclear energy will result in 400 million tons of extra carbon emissions by 2020, according to a Breakthrough Institute analysis. Lower utility bills: At 2.14 cents per kilowatt-hour of electricity, nuclear energy facilities are the lowest-cost producer of baseload electricity, even in the absence of a tax on carbon, which would significantly increase the cost of all fossil-fueled electricity sources. Less land required: About 1.7 square miles of land is used to produce 1,800 megawatts of power from nuclear energy, far less than wind (169 square miles) and solar photovoltaics (21 square miles). More good-paying jobs: The US nuclear energy industry employs approximately 120,000 people, at salaries that pay about 36 percent more than the average rate in the local areas where reactors are based. Each nuclear plant generates $430 million per year in economic benefits.

### 1AR de-dev ext.

#### You should prefer our studies on the positive effects of capitalism- they are the only ones that use falsifiable methods

Weede ‘4 (Erich, professor of sociology at the University of Bonn, Germany, In Winter 1986-87, he was Visiting Professor of International Relations at the Bologna Center of The Johns Hopkins University, “BALANCE OF POWER, GLOBALIZATION, AND THE CAPITALIST PEACE,” http://www.fnf.org.ph/downloadables/Balance%20of%20Power,%20Globalization%20and%20Capitalist%20Peace.pdf)

If one does research or summarize the research of others – of course, most of the ideas, theories, and evidence discussed below have been produced by others – one cannot avoid some epistemological commitments. In the social sciences the fundamental choice is whether to pursue an ideographic or a nomothetic approach. Almost all historians choose the ideographic approach and focus on the description of structures or events, whereas most economists and psychologists choose the nomothetic approach and focus on the search for law-like general statements. Sociologists and political scientists are still divided – sometimes even by the Atlantic Ocean. In American political science the nomothetic approach dominates the flagship journal of the profession, the American Political Science Review, as well as more specialized journals, such as International Studies Quarterly, the Journal of Conflict Resolution, or World Politics. In German political science, however, the nomothetic approach has advanced little beyond electoral studies. My own approach is definitely nomothetic. This is related to my training in psychology at one of the first German universities focusing on quantitative research methods in the early 1960s, the University of Hamburg. This epistemological orientation has been reinforced by graduate training in international politics at one of the first American universities emphasizing quantitative research in the late 1960s, Northwestern University, which is located in a suburb of Chicago. Nomothetic research focuses on hypothesizing, testing and establishing law-like general statements or nomological propositions. Examples of such propositions are: The higher average incomes in a nation are, the more likely is democratic government. Or, the more economic freedom in a nation prevails, the less frequently it is involved in war. One characteristic of such propositions is that they say something about observable reality. Whenever you say something about reality, you risk that others find out that you are wrong. If we observed that most poor countries were democracies, but most rich countries were autocracies, then we should reject or, at least, modify the proposition about prosperity and democracy mentioned above.1 Nomothetic researchers look for refutations. They try to falsify their propositions or theories (Popper 1934/1959). If the empirical evidence is compatible with one's theory, then one keeps the hypothetical propositions and regards them as supported – until negative evidence turns up. Although certitude about possession of the truth is beyond the capabilities of human inquiry, growth of knowledge is conceivable by the successive elimination of errors. This epistemological approach borrowed from Popper were easily applicable, if most of our propositions were deterministic, if they claimed to be valid without exceptions. Then, finding a single exception to a general statement – say, about prosperity and democracy – would suffice to falsify the proposition. Looking at poor India nevertheless being democratic, or at fairly rich Kuwait nevertheless being autocratic, would suffice to reject the theory.2 Unfortunately, almost no theory in macroeconomics, macrosociology, or international relations delivers deterministic propositions. Instead we have only probabilistic statements of the type that more prosperous countries are more likely to be democratic than others, or that economically freer countries are more likely to avoid war involvement than others. Probabilistic assertions never can be falsified by pointing to single events which do not fit with theoretical expectations. Instead we have to look at relative frequencies, at correlations or regression coefficients. We need statistical tools to evaluate such propositions. We typically ask the question whether a hypothesized relationship is so strong that it could only rarely occur because of random measurement or sampling error. Probabilistic propositions are regarded as supported only if they jump certain thresholds of significance which are ultimately defined by mere conventions. Researchers are interested in causal propositions, that is, in statements about causes and effects, or determinants and consequences. Such statements can be used for explanation, forecasting, or policy interventions. We need to know more than the mere existence of some association or correlation between, say, prosperity and democracy, or economic freedom and the avoidance of military conflict. We need to know whether prosperity promotes democracy, or whether democracy promotes growth, or whether, possibly, both statements might be defensible or, for the time being, taken for 'true'. While a correlation between two variables, like prosperity and democracy, is equally compatible with the simple alternative causal propositions that prosperity causes democracy, and that democracy causes prosperity, this ambiguity no longer necessarily applies in more complex theoretical models. There, we tend to explain a single effect by a number of causes. For example, one may contend that democracy is promoted by prosperity as well as by a capitalist economic order (or economic freedom). We can take such a theoretical contention – which may be true or false, compatible with the data or not – as a starting point for specifying a regression equation.3 If both theoretical statements – about the democratizing effects of prosperity and capitalism – were true, then the regression coefficients of both variables should be positive and significant. If this is what we find in empirical research, then we regard the two propositions as provisionally supported. But final proofs remain impossible in empirical research. It is conceivable that some nonbeliever in the two propositions suggests a third measurable determinant of democracy. Before it actually is included in the regression equation, one never knows what its inclusion results in. Possibly, the previously significant and positive regression coefficients of prosperity and capitalism might be reduced to insignificance or even change signs. Then a previously supported causal proposition would have to be overturned and rejected. The claim of causality implies more than observable association or correlation. It also implies temporal precedence of causes before effects. If one wants to test the causal proposition that prosperity contributes to democratic government, or that economic freedom contributes to the avoidance of military conflict, then one should measure prosperity or economic freedom before their hypothesized effects occur – certainly not later. If there is doubt about the direction of causality, as there frequently is, one might also look at the relationships between, say, earlier prosperity and later democracy as well as between earlier democracy and later prosperity. Although such investigations may become technically complicated, it might suffice here to keep the general principles in mind. From causal propositions we derive expectations about correlation or regression coefficients. But conclusions from correlations to causal propositions are not justified. One simply can never 'verify' causal statements by correlations. From causal propositions we also derive expectations about temporal precedence. As long as empirical evidence fits one's theoretical expectations, one regards the propositions or theory as provisionally supported and works with them. There is another complication. As illustrated by the debate about the effects of trade and economic interdependence on the avoidance of military conflict below, full accordance of empirical studies and verdicts with theories is the exception rather than the rule – if it ever happens at all. That is why some philosophers of science (for example, Kuhn 1962; Lakatos 1968-69) have been critical of the idea of falsification and warned against premature rejection of propositions. If 'anomalies' or 'falsification' are more or less ubiquitous, then our task is no longer so easy as to choose between theories which have been falsified and therefore deserve rejection and those which are compatible with the facts and therefore deserve to be accepted until negative evidence turns up. Then our task becomes to choose between competing theories, for example about the conflict reinforcing or pacifying impact of trade, and to pick those which fit the data relatively better than others. So, the claim advanced in this review of the literature cannot be that the empirical evidence fits the capitalist peace idea perfectly, but merely that the evidence fits it much better than competing explanations of military conflict and notions about the negative impact of capitalism on the avoidance of conflict and war or the irrelevance of democracy do. The epistemological discussion above could provide no more than a crude 'feel' for empirical research in the social sciences and its pitfalls. Although certitude is beyond reach, it is better to rely on testable, tested and so far supported propositions than on a hodgepodge of ambiguous hunches, contradictory thinking, and unsystematically evaluated empirical evidence.

#### Transition won’t happen - no time to rebuild or organizational framework for an economic restructuring.

Brian Davey, 12-3-2009, New Zealand Geophysical Society: Member, Council Rep since 2003, “Responds to Ted Trainer,” <http://transitionculture.org/2009/12/03/brian-davey-responds-to-ted-trainer/>

At that point I HAD TO GET REAL. Ted, it took me years with others to develop a successful community garden project. When I look at your description of all the things that you say that the Transition Movement must do I want to scream with frustration: are you joking? It is not an ideological objection – because I have a taste for consumer goods and big cars and want to defend consumer capitalism – it is a practical objection – because I and others are already struggling with insufficient time with the very small initiatives that we are making. We are struggling already – the number of people with the organisational and social entrepreneurial skills to set things up is small. There are lots willing to follow but few willing, or able, to lead – or we have not yet found the way to encourage and help people learn to lead, to learn to organise and to become social/environmental entrepreneurs (not in the profit seeking sense). Probably, mainly, this is because most people are used to working in large organisations and they always assume that one has to start off too big and “build” things like architects and developers – assembling complex organisational structures – rather than develop through “planting things”, then tend them, letting them evolve and grow step by step. (It is also because people have this habit of assuming, if something needs doing, that they must “call on” politicians to do it…..as if….) What I learned as a development worker was that you have to start small and build things up step by step – sure you may have a long term and comprehensive vision of the type that you put forward – but here and now the Transition Initiatives are conceived of as just that – “transitional” – starting with down on the ground practicalities like learning to garden and learning to mend socks. I know its not all that you think is necessary to challenge consumer capitalism as a system both practically and ideologically but your vast agenda is way above anything most of us have time for and serves more to discourage than anything else because it tells us all the other things that we have to do and that what we are doing already, in many cases run ragged with voluntary overwork – is still not enough. It is also, in its flavour one of those “building documents” – it reminds me of my Trotskyite days where a familiar phrase was “Comrades, what we have to understand is the need to…” which translated is “you lot who I have just commandeered into my audience, I understand somethings a lot better than you and these things are this……(lead into a lot of technical \*highly meaningful\* ideological jargon – the magical formula which the orator knows, just knows, will set the whole world alight….if only his audience will say “hurrah, you’re right, we are right behind you comrade…) As a matter of fact several of the people who started off Transition Nottingham were anarchists and if you scratch the surface you will find it full of radicals with a starting point ideology not dissimilar to yours – but they are struggling to make the transition from being communicators of grand visions to being practical developers of organisations and practical activities – as I had to. It’s a big difference. They may still have a residual sympathy for that ideological background and I don’t know anyone who defends consumer capitalism – but I don’t know anyone who has time to develop a city wide development co-op either – but I do know some people who I rate very highly are looking to set up a wind turbine where the revenue from which will go to fund energy efficiency work in a poor neighbourhood where the people otherwise would not be able to afford energy efficiency work. I don’t need to tell any of these people about consumer capitalism and what we should be doing… The main point I would make however is this. Given the lack of time that there is, given the sheer magnitude of the task – a huge work agenda of the “comrades, these are the institutions to replace consumer capitalism that you have to create type” is beside the point – none of us have the time to set about “building” these institutions – unless this happens within a framework where it would happen anyway because it is already built into the operating system of the movement and will evolve out of its later development anyway. Now I happen to believe that – WHEN we have evolved further and WHEN we can therefore set things up which are bigger than sock darning and tree pruning workshops and when the community gardens become too big to be organised in the old way, there are indeed ways that we can evolve which encourage community level and a certain global solidarity if we try to build these things into the small things that we do now and then build the same principles recursively into the slightly larger things that we subsequently do and then huld the same principles into the larger organisations and networks as we evolve and spread these networks and activities what we are doing onto bigger scales. That is to say – instead of specifying the institutions that every non consumer capitalist town must have – we specify the principles that every initiative small and large should try to embody in itself at each scale. In this regard I think you’ll find that most Transition Iniatives are supposed to be informed by Permaculture ethics

#### Elites will crush the movement – any transition will be extremely violent.

Takis Fotopoulos, 2000, Greek political writer and former academic, “The limitations of Life-style strategies: The Ecovillage “Movement” is NOT the way towards a new democratic society,” http://www.inclusivedemocracy.org/dn/vol6/takis\_trainer\_reply.htm

However, before we proceed to assess Trainer’s stand on the matter we have to clarify the meaning of confrontation with the system. In a broad sense, this confrontation means any kind of activity which aims to confront rather than to bypass the system, at any stage of the transition to a new society. Such activities could include both direct action and life-style activities, as well as other forms of action aiming at creating alternative institutions at a significant social scale through, for instance, the taking over of local authorities. The condition for such activities to be characterised as confronting the system is that they are an integral part of a mass political movement for systemic change. This type of confrontation does not involve in principle any physical violence, apart from self-defence in the case, for instance, of direct action, although it should be expected that the elites will extensively use any form of violence particularly economic violence to crush such a movement. On the other hand, in a narrow sense, confrontation means the physical confrontation with the mechanisms of physical violence which the elites may use against a movement for systemic change and refers exclusively to the final stage of the transition towards an alternative society. On the basis of the above definition of confrontation it is obvious that the two paradigms do not differ significantly as regards the possibility of confrontation in a narrow sense. Thus, for the ID project, whether the transition towards an ID will be marked by a physical confrontation with the elites will depend entirely on their attitude at the final stage of transformation of society, i.e. on whether they will accept peacefully such a transition, or whether they will prefer instead to use physical violence to crush it, as is most likely given that the transition will deprive them of all their privileges. Trainer also accepts the possibility of such a conflict: ‘If someday we do find ourselves in mortal conflict with capitalism then so be it, but the strategic situation will then be quite different to what it is now’.[28] Still, it seems that Trainer, in consistence with the focus on values rather than on institutions which characterises his paradigm, attempts to support the hypothesis that the system could be bypassed and a physical confrontation might be avoided, even at the very final stage of transition. However, the examples of the Eastern block regimes and of South Africa that he uses to justify his hypothesis are hardly convincing. A brief digression on the collapse of these regimes might be useful in understanding the unrealistic nature of this hypothesis. It is clear that to understand the reasons for the collapse of a regime one has to consider the nature and the causes of it. Thus, on the basis of the first criterion, the South Africa example is not relevant to the systemic change that we have been discussing here. What happened there was not a replacement of one type of social and economic system by another but a restructuring of the ruling political and economic elites to include members of the black majority. Although the average black individual, as a result of this change, gained more civil rights and liberties than before, s/he is still not going to be less heteronomous than the average citizen in the North —the topic of discussion here. On the basis of the second criterion, the collapse of the Eastern European blocks is also not relevant to the kind of systemic change that we are considering. As I attempted to show elsewhere,[29] it was the internal contradictions of these regimes which led to their collapse, as a result of the lack of any effective popular base to support them. This is because what reproduces a social system in the long term is not just the threat of physical violence but, mainly, the provision of adequate incentives which will gain the support, or at least the tolerance, of the majority of the population. It was therefore the failure of these regimes to provide such incentives, like the ones provided by Western regimes, which led to their collapse. Thus, first, the failure of ideological incentives was inevitable in a system characterised by a fundamental contradiction between the official ideology of economic equality and the reality of concentration of power. Second, the lack of effective material incentives, (positive or negative), similar to the ones provided in the West, made the long-term survival of the system impossible. Consumerism, a powerful positive incentive, was impossible in the East, given the relatively low level of economic development and the drainage on resources, as a result of the military competition with the West, imposed by the latter in its effort to choke any threat against the market economy. Also, the threat of unemployment, a basic negative material incentive used to undermine any effective social action against a system, was ruled out by an official ideology which even imposed a constitutional guarantee of full employment. On the other hand, the system of the market economy and representative democracy provides enough ideological and material incentives to create a ‘contented’ majority in the North (or a similar minority in the South), and at the same time achieve the tolerance of most of the rest of the population. It is these incentives which, together with the occasional use of physical violence, especially in the South, enable the ruling elites to keep power , rather than the use of physical power. However, when such incentives do not work and a serious threat to the market system develops (as for instance it happened in Germany during the Great Deppression or frequently happened in the post-war period in the South), the ruling elites will have no hesitation to use physical violence. The examples, therefore, given by Trainer to justify his hypothesis about the possibility of radical systemic change without confrontation are not representative at all. Had he wanted to be convincing he should have provided evidence of capitalist regimes which fell without confrontation and, as far as I know, History is not exactly full of such examples!

#### This takes-out your public mindset shift arguments.

Richard Heinberg, 2004, Senior Fellow of Post Carbon Institute and Member of the Core Faculty at the New College of California and Writer on Energy Resource Issues, “Power Down: Options and Actions for a Post-Carbon World”

The world must do both — reduce human population and reduce per-capita resource consumption in the industrialized regions — if society is to power down rather than collapse in chaos. The Earth cannot afford rich people, nor can it continuously support six billion humans and counting at any standard of living. But this news pleases no one. If the Movement were to truly embrace it, the elites would pounce, and it would be the easiest PR takedown in history. A few well-paid public relations firms would place some ads and op-ed pieces, and an "authoritative" study or two would be issued saying, in effect, "Nonsense! There is plenty for everyone; technology and the market will fix everything." Broadcast commentators would pile on, polls would be taken, and the foolish notion that humans actually face ecological constraints, just as all other organisms do, would be thoroughly discredited and banished from serious conversation. Imagine how the talk show hosts would rant: "Reduce our standard of living? Now `they' are trying to take away your car!" — a car that will cease to run anyway when oil becomes prohibitively expensive. "Reduce population? Why that sounds like genocide!" — which, ironically, is exactly what the elites themselves are preparing for through their investments in nuclear bombs and genetic bio-weapons. And so the critical message is muted and truncated. The Movement tailors its utterances for maximum public-relations effectiveness, just as the elites do. Politics trumps truth.

### Growth key to solve poverty

#### Growth key to solve poverty.

Ian Vásquez, 2001, Director of the CATO Institute’s Project on Global Economic Liberty, Economic Perspectives, “Ending Mass Poverty,” September, http://www.cato.org/research/articles/vas-0109.html

Economic growth is the "only path to end mass poverty," says economist Ian Vásquez, who argues that redistribution or traditional poverty reduction programs have done little to relieve poverty. Vásquez writes that the higher the degree of economic freedom -- which consists of personal choice, protection of private property, and freedom of exchange -- the greater the reduction in poverty. Extending the system of property rights protection to include the property of poor people would be one of the most important poverty reduction strategies a nation could take, he says. The historical record is clear: the single, most effective way to reduce world poverty is economic growth. Western countries began discovering this around 1820 when they broke with the historical norm of low growth and initiated an era of dramatic advances in material well-being. Living standards tripled in Europe and quadrupled in the United States in that century, improving at an even faster pace in the next 100 years. Economic growth thus eliminated mass poverty in what is today considered the developed world. Taking the long view, growth has also reduced poverty in other parts of the world: in 1820, about 75 percent of humanity lived on less than a dollar per day; today about 20 percent live under that amount. Even a short-term view confirms that the recent acceleration of growth in many developing countries has reduced poverty, measured the same way. In the past 10 years, the percentage of poor people in the developing world fell from 29 to 24 percent. Despite that progress, however, the number of poor people has remained stubbornly high at around 1,200 million. And geographically, reductions in poverty have been uneven.

#### These systemic impacts outweigh all.

James Gilligan, 1998, Professor of Psychiatry at the Harvard Medical School, Director of the Center for the Study of Violence, and a member of the Academic Advisory Council of the National Campaign Against Youth Violence, “Violence: Our Deadly Epidemic and its Causes”, p. 191-6

The deadliest form of violence is poverty. You cannot work for one day with the violent people who fill our prisons and mental hospitals for the criminally insane without being forcible and constantly reminded of the extreme poverty and discrimination that characterizes their lives. Hearing about their lives, and about their families and friends, you are forced to recognize the truth in Gandhi’s observation that the deadliest form of violence is poverty. Not a day goes by without realizing that trying to understand them and their violent behavior in purely individual terms is impossible and wrong-headed. Any theory of violence, especially a psychological theory, that evolves from the experience of men in maximum security prisons and hospitals for the criminally insane must begin with the recognition that these institutions are only microcosms. They are not where the major violence in our society takes place, and the perpetrators who fill them are far from being the main causes of most violent deaths. Any approach to a theory of violence needs to begin with a look at the structural violence in this country. Focusing merely on those relatively few men who commit what we define as murder could distract us from examining and learning from those structural causes of violent death that are for more significant from a numerical or public health, or human, standpoint. By “structural violence” I mean the increased rates of death, and disability suffered by those who occupy the bottom rungs of society, as contrasted with the relatively low death rates experienced by those who are above them. Those excess deaths (or at least a demonstrably large proportion of them) are a function of class structure; and that structure itself is a product of society’s collective human choices, concerning how to distribute the collective wealth of the society. These are not acts of God. I am contrasting “structural” with “behavioral violence,” by which I mean the non-natural deaths and injuries that are caused by specific behavioral actions of individuals against individuals, such as the deaths we attribute to homicide, suicide, soldiers in warfare, capital punishment, and so on. Structural violence differs from behavior violence in at least three major respects. \*The lethal effects of structural violence operate continuously, rather than sporadically, whereas murders, suicides, executions, wars, and other forms of behavior violence occur one at a time. \*Structural violence operates more or less independently of individual acts; independent of individuals and groups (politicians, political parties, voters) whose decisions may nevertheless have lethal consequences for others. \*Structural violence is normally invisible, because it may appear to have had other (natural or violent) causes. [CONTINUED] The finding that structural violence causes far more deaths than behavioral violence does is not limited to this country. Kohler and Alcock attempted to arrive at the number of excess deaths caused by socioeconomic inequities on a worldwide basis. Sweden was their model of the nation that had come closest to eliminating structural violence. It had the least inequity in income and living standards, and the lowest discrepancies in death rates and life expectancy; and the highest overall life expectancy of the world. When they compared the life expectancies of those living in the other socioeconomic systems against Sweden, they found that 18 million deaths a year could be attributed to the “structural violence” to which the citizens of all the other nations were being subjected. During the past decade, the discrepancies between the rich and poor nations have increased dramatically and alarmingly. The 14 to 19 million deaths a year caused by structural violence compare with about 100,000 deaths per year from armed conflict. Comparing this frequency of deaths from structural violence to the frequency of those caused by major military and political violence, such as World War II (an estimated 49 million military and civilian deaths, including those by genocide – or about eight million per year, 1939-1945), the Indonesian massacre of 1965-66 (perhaps 575,000 deaths), the Vietnam war (possibly two million, 1954-1973), and even a hypothetical nuclear exchange between the U.S. and the U.S.S.R. (232 million), it is clear that even war cannot begin to compare with structural violence, which continues year after year. In other words, every fifteen years, on the average, as many people die because of relative poverty as would be killed by the Nazi genocide of the Jews over a six-year period. This is, in effect, the equivalent of an ongoing, unending, and accelerating, thermonuclear war, or genocide, perpetrated on the weak and poor every year of every decade, throughout the world. Structural violence is also the main cause of behavioral violence on a socially and epidemiologically significant scale (from homicide and suicide to war and genocide). The question as to which of the two forms of violence – structural or behavioral – is more important, dangerous, or lethal is moot, for they are inextricably related to each other, as cause to effect.

## Politics

### Non-unique

**The 2013 bill will fail for the same reasons the 2007 bill did.**

Alex **Altman 3/20** 2013 “Four Hurdles That Could Block Immigration Reform” (Washington correspondent for TIME) <http://swampland.time.com/2013/03/20/four-hurdles-that-could-block-immigration-reform/>

**Problem #2: The Lobbyists A few years ago, an impasse between the leaders of the Chamber of Commerce and the AFL-CIO helped scupper an immigration-reform bill** backed by President George W. Bush. At that time, business and labor could not agree on how many visas to grant low skilled workers who make the construction, agriculture and hotel and restaurant industries hum. The Chamber wanted cheap labor, but didn’t want workers to stay; unions were concerned about protecting citizens’ jobs. Soon after, reform collapsed.This time the two groups have nurtured an unlikely alliance. “There has been a sea change,” says a labor source close to the discussions. Nudged by Graham and Schumer, the two lobbies released a set of shared principles, including one stating that Americans should get “first crack” at available jobs and that businesses should have the flexibility to hire to meet the demands of the market. But **history could repeat itself again. The two sides call for a new federal agency charged with setting visa levels**, but they have yet to agree on who’s eligible or how the new bureau will work. The issue of future flow has been a stubborn sticking point before. And **it is as easy to imagine conservatives balking at efforts to create a new government agency as it is to foresee unions drawing a line at a small number of foreign workers**.

**Their evidence is hollow hope. Even if the senators agree on the need for reform specifics will prevent it from passing.**

Alex **Altman 3/20** 2013 “Four Hurdles That Could Block Immigration Reform” (Washington correspondent for TIME) <http://swampland.time.com/2013/03/20/four-hurdles-that-could-block-immigration-reform/>

The next few months offer the best chance in a generation for the two parties to solve a problem that has bedeviled Congress like few others. Both sides agree the U.S. immigration system is broken. Both would seem to gain from a deal that clears a pathway out of legal oblivion for the nation’s 11 million illegal immigrants. Support is building for a landmark pact. But **while negotiations are progressing in both the House and Senate, an agreement is a long way off**. **As the talks grow more detailed, obstacles to a deal may begin to emerge:** Problem #1: The Gang of Eight **The first snag lurks in the Senate, where the** so-called **Gang of Eight has huddled privately** since the election in hopes of hammering out a bill. Members have crafted a set of measures that would create a pathway to citizenship for the nation’s estimated 11 million undocumented immigrants within about 13 years while requiring them to register with federal authorities, pay back taxes and fines, learn English and undergo background checks. The deal, both sides agree, would also beef up border security and determine how the future flow of immigrants will be regulated to match the needs of the economy. The Gang’s closed conclaves have been marked by Vatican-style secrecy, often a sign of progress in a town where silence is rare. The Gang’s members – Republicans Marco Rubio, Lindsey Graham, John McCain and Jeff Flake, and Democrats Chuck Schumer, Dick Durbin, Bob Menendez and Michael Bennet – have, by all accounts, developed a rapport. “You can tell by the tone of their voices,” says an elected Democrat briefed on the progress of the private talks. But the broad themes are the easy part. The full bill will stretch to hundreds of pages, each peppered with detailed provisions that could spike it. **Members bring clashing political imperatives and ideologies to the talks.** Rubio, for example, is trying to repair the GOP’s tattered image with Hispanic voters without sparking a backlash among the movement conservatives he’d need in a presidential bid. **Graham,** who faces a probable primary challenge in 2014, **has a habit of** basking in the bipartisan spotlight before **bolting when negotiations intensify**. The measure of the Gang of Eight’s success isn’t whether they are aligned at the start of their talks. It’s whether they are all aligned at the end.

### Obama kills

#### Obama push would kill any chance of CIR.

Alex Altman, 3-20-2013, “Four Hurdles That Could Block Immigration Reform,” Washington correspondent for TIME, http://swampland.time.com/2013/03/20/four-hurdles-that-could-block-immigration-reform/

Little discussed but also looming is the possibility that Democrats drag their feet on reform. Liberals will balk if the path to citizenship is too long or too onerous, or if enforcement provisions are too rigid. Many conservatives also suspect that Democratic power brokers, despite their daily hammering of Republicans to get moving on immigration reform, many would privately prefer to keep the issue as a cudgel than actually pass a law. Barack Obama “wants to make a bill come out of the Senate that is so far out there that it would never pass, so that he can blame us for not being compassionate and use the issue to take back the House in 2014,” says a House Republican. Even some liberals see this as a plausible scenario. “There’s always a lingering doubt in my mind,” admits one House Democrat. Obama knows that putting his fingerprints on the deal is an easy way to kill it; when a draft of his proposal leaked in the press, he called Republican negotiators individually to apologize. But if negotiations in Congress bog down, he may not be so hands off.

### Loan guarantees popular

#### Loan guarantees specifically popular to both sides of the aisle because of lower tax liability.

Sharon Squassoni, November 2009, is a senior associate at the Carnegie Endowment for International Peace in the nonprolifera-tion program. Prior to joining Carnegie, she held various positions in the US government, including at the Congressional research Service, the Arms Control and Disarmament Agency, and the US State Department, is a frequent contributor to journals, magazines and books on nuclear proliferation and defense, The Centre for International Governance Innovation, No. 7, “The US Nuclear Industry: Current Status and Prospects under the Obama Administration,” p. 8, <http://www.carnegieendowment.org/files/Nuclear_Energy_7_0.pdf>

The single most important spur to build new reactors in the United States is loan guarantees. In fact, industry sources indicate they are so critical that new plants may not be built without them. These guarantees are attractive to the US Congress because they offer a way to influence markets and incentivize specific projects, and because they are “scored” as a lower liability for the taxpayer than the actual amount. Thus, a potential US$50 billion in loan guarantees could be scored by the Congressional Budget Office as only costing the taxpayer US$500 million. As originally proposed in the Energy Policy Act (EPACT) of 2005, loan guarantees would only have applied to nuclear power, but this was broadened to apply to a wide range of “innovative energy technologies,” including renewable energy technologies, which further extends their attractiveness within Congress.