# ASU Round 2 – (Aff) vs. Los Rios BS

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### Inherency

#### Observation One: Inherency

#### Obama pushing nuclear incentives now.

Pistilli 12 (Melissa, reporting on market-shaking news in the resource and mining investment sector with Resource Investing News since 2008, 10-11-12, “Nuclear Power Prominent in US Presidential Candidates’ Energy Policies” 10/11 <http://uraniuminvestingnews.com/12783/nuclear-power-united-states-energy-policies-romney-obama-election.html>)

The Obama administration’s energy policy supports the expansion of nuclear energy. Under Obama, the government’s 2012 budget allocated $36 billion in loan guarantees for new nuclear reactors and more than $800 million in loan guarantees for nuclear research, an IBISWorld report states. The research report also highlights Obama’s Clean Electricity Standard and its push for more electricity to be produced from zero-carbon sources. “These climate-change policies will lead to a boost in nuclear-energy production,” said IBISWorld. New nuclear reactors approved This year, the US approved construction of reactors for the first time in nearly 30 years; they are expected to come online by 2017. The Southern Company (NYSE:SO) won approval from the US Nuclear Regulatory Commission (NRC) to construct two new reactors at its Vogtle power plant near Waynesboro, Georgia. Currently, another 16 plants across the country have applied to the NRC to build 25 more reactors. Last month, the NRC issued a license that allows General Electric-Hitachi Global Laser Enrichment (GLE) to build and operate the first uranium enrichment plant with classified laser technology, a more cost-effective process than employing centrifuges. The plant “could provide a steady supply of uranium enriched right here in the US to the country’s nuclear reactors,” GLE CEO Chris Monetta said. The US Department of Energy (DOE) “has played a pivotal role in advancing a public-private cost-sharing program that supports the development of smaller reactors,” according to former Environmental Protection Agency administrator and former New Jersey Governor Christine Todd Whitman and Dr. Patrick More, co-founder and former leader of Greenpeace — current co-chairs of the Clean and Safe Energy Coalition. Where will waste go? However, the US nuclear revival has been held up by the fact that the country lacks a long-term plan for dealing with nuclear waste. Currently, most plants keep waste onsite in temporary storage pools, but that is only a short-term solution to a long-term problem. In June 2012, a federal appeals court ruled that the NRC has not provided “reasonable assurance” that it has a long-term waste-management solution — as a result, the NRC will not be approving any new projects for some time. The plan had been to move waste to a repository at Nevada’s Yucca Mountain. The US government has already signed contracts with several utilities, including Southern, for waste disposal at Yucca Mountain. The repository was supposed to open in 1998, but politics and legal issues stalled the project for years. Obama put the project on ice in 2010, appointing the Blue Ribbon Commission on America’s Nuclear Future to develop recommendations for creating a safe, long-term solution to nuclear waste management and storage. The Commission delivered its final report in January of this year, calling for the creation of a federal agency aimed at soliciting and evaluating voluntary proposals from states interested in hosting nuclear disposal areas. The idea is similar to what Romney proposed in October 2011 and would involve states offering disposal sites in exchange for monetary compensation. What next? The freeze on new reactor approvals hasn’t stopped the Obama administration from pushing forward on nuclear energy research and development. In late September, the US Department of Energy announced $13 million in funding for university-led nuclear innovation projects under the Nuclear Energy University Programs (NEUP). “The awards … build upon the Obama Administration’s broader efforts to promote a sustainable nuclear industry in the U.S. and cultivate the next generation of scientists and engineers,” the DOE press release states. The funding was awarded to research groups at the Georgia Institute of Technology, the University of Illinois at Urbana-Champaign and the University of Tennessee.

#### There’s global expansion of nuclear now – Fukushima doesn’t matter.

Marketwire 12 (5/3/12, – Part of the Paragon Report on uranium ore stock future

<http://finance.yahoo.com/news/nuclear-renaissance-back-track-122000381.html>)

NEW YORK, NY--(Marketwire -05/03/12)- Last year the Fukushima disaster in Japan started a downward spiral for companies in the Uranium Industry. Approximately one year later the industry looks to be finally recovering as the Global X Uranium ETF (URA) is up nearly 12 percent year-to-date. "Fukushima put a speed bump on the road to the nuclear renaissance," Ganpat Mani, president of Converdyn, said at a nuclear industry summit. "It's not going to delay the programs around the world." The Paragon Report examines investing opportunities in the Uranium Industry and provides equity research on Cameco Corporation (CCJ - News) and Uranium One, Inc. (UUU.TO - News). Approximately 650 million people in China and India currently are living without electricity. With the high costs of fossil fuel the most viable options for these countries would be nuclear power. Indonesia, Egypt, and Chile are among some of the nations that have plans to build their first nuclear power station, the list of countries operating atomic plants currently stands at 30. According to numbers released by the World Nuclear Association there are 61 reactors that are presently under construction, and plans to build another 162. "In two years, there will be very strong demand on the market, as new reactors start operating, and as new contracts with the existing fleet kick in," Areva SA's Chief Commercial Officer Ruben Lazo said in a previous interview.

#### But, the US is not reversing course on reprocessing.

Saillan 10 (Charles, attorney with the New Mexico Environment Department, Harvard Environmental Law Review, 2010, “DISPOSAL OF SPENT NUCLEAR FUEL IN THE UNITED STATES AND EUROPE: A PERSISTENT ENVIRONMENTAL PROBLEM”, Vol. 34, RSR)

The U.S. government’s position on reprocessing changed in 1974 when India exploded a nuclear weapon in the state of Rajasthan. 150 The weapon’s plutonium was isolated with reprocessing equipment imported for “peaceful purposes.” 151 Rightly concerned about the dangers of nuclear proliferation, President Ford announced that the United States would no longer view reprocessing as a necessary step in the nuclear fuel cycle. He called on other nations to place a three-year moratorium on the export of reprocessing technology. 152 In 1977, President Carter indefinitely deferred domestic efforts at reprocessing and continued the export embargo. 153 Although President Reagan reversed the ban on domestic reprocessing in 1981, 154 the nuclear industry has not taken the opportunity to invest in the technology. In 2006, the George W. Bush Administration proposed a Global Nuclear Energy Partner ship (“GNEP”) for expanded worldwide nuclear power production. 155 As a key component of the GNEP proposal, the United States would provide other nations with a reliable supply of nuclear fuel, and it would take back the spent fuel for reprocessing at a commercial facility in the United States, thus avoiding the spread of reprocessing technology. 156 However, the Obama Administration substantially curtailed GNEP in 2009, and is “no longer pursuing domestic commercial reprocessing.” 157

### Observation 2

#### Observation Two: Peak Uranium

#### Peak uranium is coming by 2016.

Keen 12 (Kip, Uranium supply crunch by 2016 - nuclear expert says, Mineweb, 24 January 2012, http://www.mineweb.co.za/mineweb/view/mineweb/en/page72103?oid=143915&sn=Detail&pid=102055, da 8-27-12)

A nuclear expert gave uranium supply three more years - at most - before it seriously falls behind demand from the nuclear power industry.¶ "2016: We have to have supply in the market or the lights will gradually go out in the nuclear system," said Thomas Drolet, the president of Drolet & Associates Energy Services, during a presentation at Cambridge House's Vancouver Resource Investment conference on Monday.¶ A uranium supply crunch is widely anticipated to hit the nuclear industry starting next year as Cold War era sources of uranium dry up. To illustrate the severity of the shortage that the nuclear industry faces, Drolet highlighted 2010 uranium production from mining - 118 million pounds - versus consumption: 190 million pounds.¶ "You can do the delta difference yourself," Drolet said, referring to how much of a supply gap miners will have to make up for in coming years. ¶ That uranium is "going to have to come from somewhere," he said.¶ The Fukushima nuclear disaster in Japan, Drolet argued, only delayed the onset of the coming pinch on uranium supply. But even in his "downside" analysis the uranium deficit still comes by 2015.

#### Increased domestic production of uranium is key to our tritium supply – foreign sources cannot solve.

Rowny 12 [edward, retired Lieutenant General, was chief negotiator with the rank of ambassador in the START arms control negotiations with the Soviet Union and has served as an arms control adviser and negotiator for five presidents, Roll Call, 3-29-2012,

http://www.rollcall.com/issues/57\_118/edward-rowny-safe-uranium-enrichment-should-be-us-priority-213505-1.html]

Oil may grab headlines, but nuclear power for civilian use is growing, as it should. It is efficient, extremely safe and friendly to the environment. As with oil, the U.S. would be wise to produce its own supply of enriched uranium, the fuel for nuclear power plants. Farming out the process to other nations — or to companies headquartered overseas — is risky and increases our vulnerabilities. The U.S. government should pay more attention than it has in recent years to the nation’s dwindling ability to enrich its own uranium. The consequences of doing otherwise could be dramatic. Our country could find itself at the mercy of foreigners who do not have our best interests at heart. Energy independence, a laudable aspiration for oil, is even more essential for nuclear power. Domestically produced supplies of enriched uranium are already running short. The U.S. once produced most of the world’s enriched uranium. Now we’re down to about a quarter of the world’s supply. For reasons of national security, we shouldn’t dip further. That’s why the president should be praised for requesting $150 million in next year’s National Nuclear Security Administration budget to keep uranium enrichment alive on our soil. In the meantime, Chu has asked Congress for the authority to reallocate his current budget resources for that purpose until next year’s budget is enacted. Without this cash infusion, American technology at a major facility in rural Ohio will face an uncertain future. We can’t afford the uncertainty. Military considerations also play a role here. Nuclear weapons, while thankfully on the decline, still exist and must be maintained and updated. International treaties mandate that tritium, a rare, radioactive isotope that’s a byproduct of enriched uranium use in nuclear reactors and is critical to the proper, safe functioning of nuclear weapons, must be made with U.S. technology. Unless U.S. technology is available to make the enriched uranium needed to produce tritium, our national security will be at risk.

#### That’s key to the usefulness of our nuclear weapons.

Gaffney 10 (Frank, founder and president of the Center for Security Policy, “There Goes the Nuclear Deterrent”, Breitbart, 10-14-2010, <http://www.breitbart.com/Big-Peace/2010/10/14/There-Goes-the-Nuclear-Deterrent>)

The House Armed Services Committee warned in 1993 that the deterrent was being subjected to “erosion by design” – and thanks to these sorts of deliberate actions – those chickens are coming home to roost today, with a vengeance. ¶ Now, we learn that the stockpile is literally running out of gas. ¶ A key ingredient used to boost the explosive power of thermonuclear devices is a gas called tritium. Unlike other radioactive materials used in such weapons (notably, plutonium and uranium), the usefulness of tritium degrades fairly quickly – its “half-life” is only about 12 years. As a result, the tritium reservoirs in our bombs and missile warheads must be regularly refueled in order for those weapons to remain operable.

#### Reliability underpins the effectiveness of our deterrent.

Caves 10 (John, Senior Research Fellow in the Center for the Study of Weapons of Mass Destruction at the National Defense University, “Avoiding a Crisis of Confidence in the U.S. Nuclear Deterrent”, January , Strategic Forum, No. 252, Institute for National Strategic Studies¶ National Defense University,

<http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ada514285>)

As an emerging nuclear-armed near peer like China narrows the wide military power gap that currently separates it from the United States, Washington could find itself more, rather than less, reliant upon its nuclear forces to deter and contain potential challenges from great power competitors. The resulting security dynamics may resemble the Cold War more than the U.S. “unipolar moment” of the 1990s and early 2000s. Concerns about Longterm Reliability With continuing U.S. dependence upon nuclear forces to deter conflict and contain challenges from (re-)emerging great power(s), perceptions of the reliability, adequacy, and credibility of those forces will determine how well they serve those purposes. Perception is all important when it comes to nuclear weapons, which have not been operationally employed since 1945 and not tested (by the United States) since 1992, and, hopefully, will never have to be employed or tested again. If U.S. nuclear forces are to deter other nuclear-armed great powers, the individual weapons must be perceived to work as intended (reliability), the overall forces must be perceived as adequate to deny the adversary the achievement of his goals regardless of his actions (adequacy), and U.S. leadership must be perceived as prepared to employ the forces under conditions that it has communicated via its declaratory policy (credibility) These perceptions must be, of course, those of the leadership of adversaries that we seek to deter (as well as of the allies that we seek to assure), but they also need to be those of the U.S. leadership lest our leaders fail to convey the confidence and resolve necessary to shape adversaries’ perceptions to achieve deterrence. Weapons reliability is the essential foundation for deterrence since there can be no adequacy or credibility without it. Reliability is a serious emerging issue for U.S. nuclear weapons. As Secretary of Defense Robert Gates observed, “No one has designed a nuclear weapon in the United States since the 1980s, and no one has built a new one since the early 1990s.” 8 Indeed, the United States is the only nuclear weapons state party to the Nuclear Nonproliferation Treaty (NPT) that does not have the capability to produce a new nuclear warhead. 9 Russia, China, and France currently are modernizing their nuclear weapons systems, and the United Kingdom has decided to replace its current Vanguard-class ballistic missile submarines and is investing in the sustainment of its nuclear warhead maintenance and replacement capabilities. 10 In lieu of a nuclear weapons production infrastructure and nuclear testing, the United States relies upon its Stockpile Stewardship Program (utilizing computer simulation and component testing) to evaluate and validate the continued viability of existing warheads; service life extension programs to prolong the operational life of warheads (and delivery vehicles); and a stockpile of nonoperationally deployed warheads to provide spares for destructive component testing under the Stockpile Stewardship Program and a reserve to be pressed back into service to augment operationally deployed warheads, if deemed necessary. The Achilles’ heel of this current approach to ensuring the reliability of U.S. nuclear forces is the possible advent of critical systemic failure(s) in entire classes of aging warheads. That such failures could occur can be anticipated as a general matter for any aging system, particularly one that is no longer physically tested as a complete assembly. Specific failures, however, cannot be accurately forecast since the United States has no prior experience with warheads of this age. The potential for such failures emerging is increased by the relatively narrow performance margins to which the warheads were engineered by Cold War nuclear weapons designers tasked with maximizing the number and explosive power of warheads that could be delivered by a ballistic missile. 11 U.S. nuclear weapons scientists have warned of this problem for years. 12 The preceding administration proposed to address this problem by reconstituting and exercising the infrastructure needed to develop and produce nuclear weapons. The proposal involved both facilities (consolidation, refurbishment, and replacement), work force (maintenance of highly specialized nuclear weapons skills), and nuclear weapons design, development, and production work (for refurbishment and replacement of existing warheads). The Department of Energy’s National Nuclear Security Administration, which is responsible for the nuclear weapons infrastructure, expected that the infrastructure transformation plan could be implemented within its existing budget projections if the savings realized from the plan were allowed to be reinvested into the infrastructure. 13 While some aspects of the proposed new infrastructure have moved forward (for example, the National Ignition Facility), much of the plan has not because Congress has declined to provide the requisite funding.

#### Nuclear deterrence necessary to deter rogue states, CBW attacks, power challengers, and allied proliferation - impact is extinction.

Schneider 9 (Mark, Senior Analyst with the National Institute for Public Policy, May/April 2009 “The Future of the US Nuclear Deterrent” Comparative Strategy, p345-360)

According to the Pentagon’s Quadrennial Defense Review, the United States must maintain a “robust nuclear deterrent, which remains a keystone of U.S. national power.”98 The reason should be self evident—without a nuclear deterrent the United States could be destroyed as an industrial civilization and our conventional forces could be defeated by a state with grossly inferior conventional capability but powerful WMD. We cannot afford to ignore existing and growing threats to the very existence of the United States as a national entity. Missile defenses and conventional strike capabilities, while critically important elements of deterrence and national power, simply can’t substitute for nuclear deterrence. In light of the emerging “strategic partnership” between Russia and China and their emphasis on nuclear weapons it would be foolish indeed to size U.S. strategic nuclear forces as if the only threat we face is that of rogue states and discard the requirement that the U.S. nuclear deterrent be “second to none.” Ignoring the PRC nuclear threat because of Chinese “no first use” propaganda is just as irresponsible. Absent a nuclear deterrent to their WMD use, rogue states could defeat our forces by the combination of few nuclear EMP weapons and large chemical and biological attacks. The situation would be much worse if they build a more extensive nuclear strike capability as has been reported. Freezing U.S. nuclear forces at the technical level of the Reagan administration will assure that, within two decades, Russia, China, India, and probably others will be technically superior and U.S. deterrence ability against CBW attack will be reduced. United States nuclear forces must be modernized and tailored to enhance deterrence and damage limitation against the rogue WMD threat. WMD capabilities have given otherwise inconsequential states the ability to kill millions of people. The right combination of missile defense and conventional and nuclear strike capabilities provide the best deterrent and damage limiting capability against the rogue state threat. We must not ignore the requirement to provide extended deterrence to our allies. British and French nuclear forces are not large enough, and these nations are not perceived as tough enough, to provide a deterrent for NATO Europe against Russia. In the Far East, there is literally no nuclear deterrent capability against China other than that provided by the United States. Failure to provide a credible deterrent will result in a wave of nuclear proliferation with serious national security implications. When dealing with the rogue states, the issue is not the size of the U.S. nuclear deterrent but the credibility of its use in response to chemical or biological weapons use and its ability to conduct low collateral damage nuclear attacks against WMD capabilities and delivery systems including very hard underground facilities for purposes of damage limitation. We must also have the capability to respond promptly. The United States nuclear guarantee is a major deterrent to proliferation. If we do not honor that guarantee, or devalue it, many more nations will obtain nuclear weapons. If arms control really becomes a substitute for nuclear deterrence and defense, it may very well precipitate the most destructive war in history. Effective verification is essentially impossible, and verification is not a substitute for compliance. Today, arms control has become part of the problem rather than a solution to the problem. The abolition of the in-kind deterrent to CBW use—which deterred CBW use in World War II—is making the world more unsafe almost on a daily basis. The START and Intermediate-Range Nuclear Forces (INF) Treaties prevent or inhibit the development of conventional strike capabilities with enhanced ability to counter WMD. The demise of the ABM Treaty, while very useful, does not completely address the problem of legacy arms control and its constraints upon U.S. conventional capabilities.

#### Adoption of reprocessing solves U.S. uranium needs

Sayre 11 (Edwin, engineering consultant, “Commercial Value of Used Nuclear Fuel Reprocessed with Elements Separated, Purified and Reduced to Metals”, NIST, 2011, <http://www.nist.gov/tip/wp/pswp/upload/164_commercial_value_used_nuclear_fuel_reprocessed.pdf>)

The commercial value of the elements in the used fuel as indicated in Table 1 is a big ¶ surprise for most people. The commercial value of over twenty million dollars a year each 1000 MW reactor is based on today’s value for the rare metals in the fission ¶ products and the fissile metals to be recycled in fuel. The accelerated use of these ¶ elements with future technology will probably make them worth more than double that ¶ commercial value in 2050.¶ The United States should be interested in determining the cost of reprocessing the used ¶ fuel and preparing the elements for commercial use. It is estimated roughly that there ¶ will be a considerable profit in the processing of the elements in the used fuel. DOE is ¶ supporting technical proposals for the Advanced Fuel Cycle Initiative (AFCI) for ¶ computing and simulating the operations required for processing the used fuel and ¶ separating out the commercial elements to determine the cost. There will be further ¶ programs to optimize the technology for the processing and establishing the required ¶ facilities. It would be economically ideal to start up the first reprocessing facilities by ¶ 2020 to start using the used fuel with over 50 years of aging. ¶ Many other countries are moving forward in the reprocessing and recycling the actinides ¶ in fast breeder reactors to make fuel from all low enriched fuel for the future use in the ¶ thermal reactor power plants. There is enough used nuclear fuel and the uranium 238 ¶ stored away to meet all of the US energy requirements for the next 500 years with the ¶ proper technical planning and program operation.

### Observation 3

#### Observation Three: Warming

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

Prothero 12 (Donald, Lecturer in Geobiology at Cal Tech and Professor of Geology at Occidental College, 3-1-12, “How We Know Global Warming is Real and Human Caused," Skeptic, vol 17 no 2, EBSCO)

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

#### Scientific consensus goes aff – 97% of the most qualified scientists in the field agree

Anderegg, et al. 10 (William (Department of Biology, Stanford University); James Prall (Electrical and Computer Engineering, University of Toronto); Jacob Harold (William and Flora Hewlett Foundation); and Stephen Schneider (Department of Biology, Stanford University and Woods Institute for the Environment, Stanford University), “Expert credibility in climate change”, PNAS, Vol. 17, No. 27, July 6, 2010, RSR

\*\*Note: ACC = Anthropogenic Climate Change, UE = those unconvinced by evidence and CE = those convinced by evidence.)

The UE group comprises only 2% of the top 50 climate researchers as ranked by expertise (number of climate publications), 3% of researchers of the top 100, and 2.5% of the top 200, excluding researchers present in both groups (Materials and Methods). This result closely agrees with expert surveys, indicating that ≈97% of self-identiﬁed actively publishing climate scientists agree with the tenets of ACC (2). Furthermore, this ﬁnding complements direct polling of the climate researcher community, which yields qualitative and self-reported researcher expertise (2). Our ﬁndings capture the added dimension of the distribution of researcher expertise, quantify agreement among the highest expertise climate researchers, and provide an independent assessment of level of scientiﬁc consensus concerning ACC. In addition to the striking difference in number of expert researchers between CE and UE groups, the distribution of expertise of the UE group is far below that of the CE group (Fig. 1). Mean expertise of the UE group was around half (60 publications) that of the CE group (119 publications; Mann–Whitney U test: W = 57,020; P < 10 −14 ), as was median expertise (UE = 34 publications; CE = 84 publications). Furthermore, researchers with fewer than 20 climate publications comprise ≈80% the UE group, as opposed to less than 10% of the CE group. This indicates that the bulk of UE researchers on the most prominent multisignatory statements about climate change have not published extensively in the peer-reviewed climate literature. We examined a subsample of the 50 most-published (highestexpertise) researchers from each group. Such subsampling facilitates comparison of relative expertise between groups (normalizing differences between absolute numbers). This method reveals large differences in relative expertise between CE and UE groups (Fig. 2). Though the top-published researchers in the CE group have an average of 408 climate publications (median = 344), the top UE researchers average only 89 publications (median = 68; Mann– Whitney U test: W = 2,455; P < 10 −15 ). Thus, this suggests that not all experts are equal, and top CE researchers have much stronger expertise in climate science than those in the top UE group. Finally, our prominence criterion provides an independent and approximate estimate of the relative scientiﬁc signiﬁcance of CE and UE publications. Citation analysis complements publication analysis because it can, in general terms, capture the quality and impact of a researcher’s contribution—a critical component to overall scientiﬁc credibility—as opposed to measuring a researcher’s involvement in a ﬁeld, or expertise (Materials and Methods). The citation analysis conducted here further complements the publication analysis because it does not examine solely climaterelevant publications and thus captures highly prominent researchers who may not be directly involved with the climate ﬁeld. We examined the top four most-cited papers for each CE and UE researcher with 20 or more climate publications and found immense disparity in scientiﬁc prominence between CE and UE communities (Mann–Whitney U test: W = 50,710; P < 10 −6 ; Fig. 3). CE researchers’ top papers were cited an average of 172 times, compared with 105 times for UE researchers. Because a single, highly cited paper does not establish a highly credible reputation but might instead reﬂect the controversial nature of that paper (often called the single-paper effect), we also considered the average the citation count of the second through fourth most-highly cited papers of each researcher. Results were robust when only these papers were considered (CE mean: 133; UE mean: 84; Mann–Whitney U test: W = 50,492; P < 10 −6 ). Results were robust when all 1,372 researchers, including those with fewer than 20 climate publications, were considered (CE mean: 126; UE mean: 59; Mann–Whitney U test: W = 3.5 × 10 5 ; P < 10 −15 ). Number of citations is an imperfect but useful benchmark for a group’s scientiﬁc prominence (Materials and Methods), and we show here that even considering all (e.g., climate and nonclimate) publications, the UE researcher group has substantially lower prominence than the CE group. We provide a large-scale quantitative assessment of the relative level of agreement, expertise, and prominence in the climate researcher community. We show that the expertise and prominence, two integral components of overall expert credibility, of climate researchers convinced by the evidence of ACC vastly overshadows that of the climate change skeptics and contrarians. This divide is even starker when considering the top researchers in each group. Despite media tendencies to present both sides in ACC debates (9), which can contribute to continued public misunderstanding regarding ACC (7, 11, 12, 14), not all climate researchers are equal in scientiﬁc credibility and expertise in the climate system. This extensive analysis of the mainstream versus skeptical/contrarian researchers suggests a strong role for considering expert credibility in the relative weight of and attention to these groups of researchers in future discussions in media, policy, and public forums regarding anthropogenic climate change.

#### We must act quickly with long term technological innovation to avoid the irreversible climate change triggered by 2°C.

Peters, et al. 12(Glen (Center for International Climate and Environmental Research – Oslo); Robbie Andrew (Center for International Climate and Environmental Research – Oslo); Tom Boden (Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory); Josep Canadell (Global Carbon Project, CSIRO Marine and Atmospheric Research, Canberra, Australia); Philippe Ciais (Laboratoire des Sciences du Climat et de l’Environnement, Gif sur Yvette, France); Corinne Le Quéré (Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK); Gregg Marland (Research Institute for Environment, Energy, and Economics, Appalachian State University); Michael R. Raupach (Global Carbon Project, CSIRO Marine and Atmospheric Research, Canberra, Australia); and Charlie Wilson (Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK), “The challenge to keep global warming below 2 °C”, Nature Climate Change, 12-2-12, RSR)

It is important to regularly re-assess the relevance of emissions scenarios in light of changing global circumstances3,8. In the past, decadal trends in CO2 emissions have responded slowly to changes in the underlying emission drivers because of inertia and path dependence in technical, social and political systems9. Inertia and path dependence are unlikely to be affected by short-term fluctuations2,3,9 — such as financial crises10 — and it is probable that emissions will continue to rise for a period even after global mitigation has started11. Thermal inertia and vertical mixing in the ocean, also delay the temperature response to CO2 emissions12. Because of inertia, path dependence and changing global circumstances, there is value in comparing observed decadal emission trends with emission scenarios to help inform the prospect of different futures being realized, explore the feasibility of desired changes in the current emission trajectory and help to identify whether new scenarios may be needed. Global CO2 emissions have increased from 6.1±0.3 Pg C in 1990 to 9.5±0.5 Pg C in 2011 (3% over 2010), with average annual growth rates of 1.9% per year in the 1980s, 1.0% per year in the 1990s, and 3.1% per year since 2000. We estimate that emissions in 2012 will be 9.7±0.5 Pg C or 2.6% above 2011 (range of 1.9–3.5%) and 58% greater than 1990 (Supplementary Information and ref. 13). The observed growth rates are at the top end of all four generations of emissions scenarios (Figs 1 and 2). Of the previous illustrative IPCC scenarios, only IS92-E, IS92-F and SRES A1B exceed the observed emissions (Fig. 1) or their rates of growth (Fig. 2), with RCP8.5 lower but within uncertainty bounds of observed emissions. Observed emission trends are in line with SA90-A, IS92-E and IS92-F, SRES A1FI, A1B and A2, and RCP8.5 (Fig. 2). The SRES scenarios A1FI and A2 and RCP8.5 lead to the highest temperature projections among the scenarios, with a mean temperature increase of 4.2–5.0 °C in 2100 (range of 3.5–6.2 °C)14, whereas the SRES A1B scenario has decreasing emissions after 2050 leading to a lower temperature increase of 3.5 °C (range 2.9–4.4°C)14. Earlier research has noted that observed emissions have tracked the upper SRES scenarios15,16 and Fig. 1 confirms this for all four scenario generations. This indicates that the space of possible pathways could be extended above the top-end scenarios to accommodate the possibility of even higher emission rates in the future. The new RCPs are particularly relevant because, in contrast to the earlier scenarios, mitigation efforts consistent with longterm policy objectives are included among the pathways2,. RCP3-PD (peak and decline in concentration) leads to a mean temperature increase of 1.5 °C in 2100 (range of 1.3–1.9 °C)14. RCP3–PD requires net negative emissions (for example, bioenergy with carbon capture and storage) from 2070, but some scenarios suggest it is possible to stay below 2 °C without negative emissions17–19. RCP4.5 and RCP6 — which lie between RCP3–PD and RCP8.5 in the longer term — lead to a mean temperature increase of 2.4 °C (range of 1.0–3.0 °C) and 3.0 °C (range of 2.6–3.7 °C) in 2100, respectively14. For RCP4.5, RCP6 and RCP8.5, temperatures will continue to increase after 2100 due to on-going emissions14 and inertia in the climate system12. Current emissions are tracking slightly above RCP8.5, and given the growing gap between the other RCPs (Fig. 1), significant emission reductions are needed by 2020 to keep 2 °C as a feasible goal18–20. To follow an emission trend that can keep the temperature increase below 2 °C (RCP3-PD) requires sustained global CO2 mitigation rates of around 3% per year, if global emissions peak before 202011,19. A delay in starting mitigation activities will lead to higher mitigation rates11, higher costs21,22, and the target of remaining below 2 °C may become unfeasible18,20. If participation is low, then higher rates of mitigation are needed in individual countries, and this may even increase mitigation costs for all countries22. Many of these rates assume that negative emissions will be possible and affordable later this century11,17,18,20. Reliance on negative emissions has high risks because of potential delays or failure in the development and large-scale deployment of emerging technologies such as carbon capture and storage, particularly those connected to bioenergy17,18. Although current emissions are tracking the higher scenarios, it is still possible to transition towards pathways consistent with keeping temperatures below 2 °C (refs 17,19,20). The historical record shows that some countries have reduced CO2 emissions over 10-year periods, through a combination of (non-climate) policy intervention and economic adjustments to changing resource availability. The oil crisis of 1973 led to new policies on energy supply and energy savings, which produced a decrease in the share of fossil fuels (oil shifted to nuclear) in the energy supply of Belgium, France and Sweden, with emission reductions of 4–5% per year sustained over 10 or more years (Supplementary Figs S17–19). A continuous shift to natural gas — partially substituting coal and oil — led to sustained mitigation rates of 1–2% per year in the UK in the 1970s and again in the 2000s, 2% per year in Denmark in the 1990–2000s, and 1.4% per year since 2005 in the USA (Supplementary Figs S10–12). These examples highlight the practical feasibility of emission reductions through fuel substitution and efficiency improvements, but additional factors such as carbon leakage23 need to be considered. These types of emission reduction can help initiate a transition towards trajectories consistent with keeping temperatures below 2 °C, but further mitigation measures are needed to complete and sustain the reductions. Similar energy transitions could be encouraged and co-ordinated across countries in the next 10 years using available technologies19, but well-targeted technological innovations24 are required to sustain the mitigation rates for longer periods17. To move below the RCP8.5 scenario — avoiding the worst climate impacts — requires early action17,18,21 and sustained mitigation from the largest emitters22 such as China, the United States, the European Union and India. These four regions together account for over half of global CO2 emissions, and have strong and centralized governing bodies capable of co-ordinating such actions. If similar energy transitions are repeated over many decades in a broader range of developed and emerging economies, the current emission trend could be pulled down to make RCP3‑PD, RCP4.5 and RCP6 all feasible futures. A shift to a pathway with the highest likelihood to remain below 2 °C above preindustrial levels (for example, RCP3-PD), requires high levels of technological, social and political innovations, and an increasing need to rely on net negative emissions in the future11,17,18. The timing of mitigation efforts needs to account for delayed responses in both CO2 emissions9 (because of inertia in technical, social and political systems) and also in global temperature12 (because of inertia in the climate system). Unless large and concerted global mitigation efforts are initiated soon, the goal of remaining below 2 °C will very soon become unachievable.

#### Scenario one is biodiversity

#### Warming and CO2 emissions kill biodiversity – newest research shows that ecosystems are on the brink due to human activity.

Barnosky et al 12 (Anthony (Department of Integrative Biology, University of California, Berkeley); Elizabeth Hadly (Department of Biology, Stanford University); Jordi Bascompte (Integrative Ecology Group, Estacion Biologica de Donana, Sevilla, Spain); Eric Berlow (TRU NORTH Labs, Berkeley, California); James H. Brown (Department of Biology, The University of New Mexico); Mikael Fortelius (Department of Geosciences and Geography and Finnish Museum of Natural History); Wayne Getz (Department of Environmental Science, Policy, and Management, University of California, Berkeley); John Harte (Department of Environmental Science, Policy, and Management, University of California, Berkeley); Alan Hastings (Department of Environmental Science and Policy, University of California – Davis); Pablo Marquet (Departamento de Ecologıa, Facultad de Ciencias Biologicas, Pontificia Universidad Catolica de Chile); Neo Martinez (Pacific Ecoinformatics and Computational Ecology Lab); Arne Mooers (Department of Biological Sciences, Simon Fraser University); Peter Roopnarine (California Academy of Sciences); Geerta Vermeij (Department of Geology, University of California – Davis); John W. Williams (Department of Geography, University of Wisconsin); Rosemary Gilespie (Department of Environmental Science, Policy, and Management, University of California, Berkeley); Justin Kitzes (Department of Environmental Science, Policy, and Management, University of California, Berkeley); Charles Marshall (Department of Integrative Biology, University of California, Berkeley); Nicholas Matzke (Department of Integrative Biology, University of California, Berkeley); David Mindell ( Department of Biophysics and Biochemistry, University of California, San Francisco); Eloy Revilla (Department of Conservation Biology, Estacion Biologica de Donana); and Adam B. Smith (Center for Conservation and Sustainable Development, Missouri Botanical Garden), “Approaching a state shift in Earth’s biosphere”, Nature, May 2012, RSR)

As a result of human activities, direct local-scale forcings have accumulated to the extent that indirect, global-scale forcings of biological change have now emerged. Direct forcing includes the conversion of ,43% of Earth’s land to agricultural or urban landscapes, with much of the remaining natural landscapes networked with roads 1,2,34,35 . This exceeds the physical transformation that occurred at the last global-scale critical transition, when ,30% of Earth’s surface went from being covered by glacial ice to being ice free. The indirect global-scale forcings that have emerged from human activities include drastic modification of how energy flows through the global ecosystem. An inordinate amount of energy now is routed through one species, Homo sapiens. Humans commandeer ,20–40% of global net primary productivity 1,2,35 (NPP) and decrease overall NPP through habitat degradation. Increasing NPP regionally through atmospheric and agricultural deposition of nutrients (for example nitrogen and phosphorus) does not make up the shortfall 2 . Second, through the release of energy formerly stored in fossil fuels, humans have substantially increased the energy ultimately available to power the global ecosystem. That addition does not offset entirely the human appropriation of NPP, because the vast majority of that ‘extra’ energy is used to support humans and their domesticates, the sum of which comprises large-animal biomass that is far beyond that typical of pre-industrial times 27 . A decrease in this extra energy budget, which is inevitable if alternatives do not compensate for depleted fossil fuels, is likely to impact human health and economies severely 28 , and also to diminish biodiversity 27 , the latter because even more NPP would have to be appropriated by humans, leaving less for other species 36 . By-products of altering the global energy budget are major modifications to the atmosphere and oceans. Burning fossil fuels has increased atmospheric CO2 concentrations by more than a third (,35%) with respect to pre-industrial levels, with consequent climatic disruptions that include a higher rate of global warming than occurred at the last global-scale state shift 37 . Higher CO2 concentrations have also caused the ocean rapidly to become more acidic, evident as a decrease in pH by ,0.05 in the past two decades 38 . In addition, pollutants from agricultural run-off and urban areas have radically changed how nutrients cycle through large swaths of marine areas 16 . Already observable biotic responses include vast ‘dead zones’ in the near-shore marine realm39 , as well as the replacement of .40% of Earth’s formerly biodiverse land areas with landscapes that contain only a few species of crop plants, domestic animals and humans 3,40 . Worldwide shifts in species ranges, phenology and abundances are concordant with ongoing climate change and habitat transformation 41 . Novel communities are becoming widespread as introduced, invasive and agricultural species integrate into many ecosystems 42 . Not all community modification is leading to species reductions; on local and regional scales, plant diversity has been increasing, owing to anthropogenic introductions 42 , counter to the overall trend of global species loss 5,43 . However, it is unknown whether increased diversity in such locales will persist or will eventually decrease as a result of species interactions that play out over time. Recent and projected 5,44 extinction rates of vertebrates far exceed empirically derived background rates 25 . In addition, many plants, vertebrates and invertebrates have markedly reduced their geographic ranges and abundances to the extent that they are at risk of extinction 43 . Removal of keystone species worldwide, especially large predators at upper trophic levels, has exacerbated changes caused by less direct impacts, leading to increasingly simplified and less stable ecological networks 39,45,46 . Looking towards the year 2100, models forecast that pressures on biota will continue to increase. The co-opting of resources and energy use by humans will continue to increase as the global population reaches 9,500,000,000 people (by 2050), and effects will be greatly exacerbated if per capita resource use also increases. Projections for 2100 range from a population low of 6,200,000,000 (requiring a substantial decline in fertility rates) to 10,100,000,000 (requiring continued decline of fertility in countries that still have fertility above replacement level) to 27,000,000,000 (if fertility remains at 2005–2010 levels; this population size is not thought to be supportable; ref. 31). Rapid climate change shows no signs of slowing. Modelling suggests that for ,30% of Earth, the speed at which plant species will have to migrate to keep pace with projected climate change is greater than their dispersal rate when Earth last shifted from a glacial to an interglacial climate 47 , and that dispersal will be thwarted by highly fragmented landscapes. Climates found at present on 10–48% of the planet are projected to disappear within a century, and climates that contemporary organisms have never experienced are likely to cover 12–39% of Earth 48 . The mean global temperature by 2070 (or possibly a few decades earlier) will be higher than it has been since the human species evolved. The magnitudes of both local-scale direct forcing and emergent globalscaleforcing are much greater than those that characterized the last globalscale state shift, and are not expected to decline any time soon. Therefore, the plausibility of a future planetary state shift seems high, even though considerable uncertainty remains about whether it is inevitable and, if so, how far in the future it may be. The clear potential for a planetary-scale state shift greatly complicates biotic forecasting efforts, because by their nature state shifts contain surprises. Nevertheless, some general expectations can be gleaned from the natural experiments provided by past global-scale state shifts. On the timescale most relevant to biological forecasting today, biotic effects observed in the shift from the last glacial to the present interglacial (Box 1) included many extinctions 30,49–51 ; drastic changes in species distributions, abundances and diversity; and the emergence of novel communities 49,50,52–54 . New patterns of gene flow triggered new evolutionary trajectories 55–58 , but the time since then has not been long enough for evolution to compensate for extinctions. At a minimum, these kinds of effects would be expected from a globalscale state shift forced by present drivers, not only in human-dominated regions but also in remote regions not now heavily occupied by humans (Fig. 1); indeed, such changes are already under way (see above 5,25,39,41–44 ). Given that it takes hundreds of thousands to millions of years for evolution to build diversity back up to pre-crash levels after major extinction episodes 25 , increased rates of extinction are of particular concern, especially because global and regional diversity today is generally lower than it was 20,000 yr ago as a result of the last planetary state shift 37,50,51,54,59 . This large-scale loss of diversity is not overridden by historical increases in plant species richness in many locales, owing to human-transported species homogenizing the world’s biota 42 . Possible too are substantial losses of ecosystem services required to sustain the human population 60 . Still unknown is the extent to which human-caused increases in certain ecosystem services—such as growing food—balances the loss of ‘natural’ ecosystem services, many of which already are trending in dangerous directions as a result of overuse, pollutants and climate change 3,16 . Examples include the collapse of cod and other fisheries 45,61,62 ; loss of millions of square kilometres of conifer forests due to climate-induced bark-beetle outbreaks; 63 loss of carbon sequestration by forest clearing 60 ; and regional losses of agricultural productivity from desertification or detrimental land-use practices 1,35 . Although the ultimate effects of changing biodiversity and species compositions are still unknown, if critical thresholds of diminishing returns in ecosystem services were reached over large areas and at the same time global demands increased (as will happen if the population increases by 2,000,000,000 within about three decades), widespread social unrest, economic instability and loss of human life could result 64 .

#### The risk of keystone species loss leads to extinction – outweighs on reversibility.

Chen 2k (Jim, Professor of Law at University of Minnesota and Dean of Law School at Louisville, “Globalization and Its Losers”:, 9 Minn. J. Global Trade 157’ LexisNexis Legal)

Conscious decisions to allow the extinction of a species or the destruction of an entire ecosystem epitomize the "irreversible and irretrievable commitments of resources" that NEPA is designed to retard.312 The original Endangered Species Act gave such decisions no quarter whatsoever;313 since 1979, such decisions have rested in the hands of a solemnly convened "God Squad."314 In its permanence and gravity, natural extinction provides the baseline by which all other types of extinction should be judged. The Endangered Species Act explicitly acknowledges the "esthetic, ecological, educational, historical, recreational, and scientific value" of endangered species and the biodiversity they represent.315 Allied bodies of international law confirm this view:316 global biological diversity is part of the commonly owned heritage of all humanity and deserves full legal protec- tion.317 Rather remarkably, these broad assertions understate the value of biodiversity and the urgency of its protection. A Sand County Almanac, the eloquent bible of the modern environmental movement, contains only two demonstrable bio- logical errors. It opens with one and closes with another. We can forgive Aldo Leopold's decision to close with that elegant but erroneous epigram, "ontogeny repeats phylogeny."318 What concerns erns us is his opening gambit: "There are some who can live without wild things, and some who cannot."319 Not quite. None of us can live without wild things. Insects are so essential to life as we know it that if they "and other land-dwelling anthropods ... were to disappear, humanity probably could not last more than a few months."320 "Most of the amphibians, reptiles, birds, and mammals," along with "the bulk of the flowering plants and ... the physical structure of most forests and other terrestrial habitats" would disappear in turn.321 "The land would return to" something resembling its Cambrian condition, "covered by mats of recumbent wind-pollinated vegetation, sprinkled with clumps of small trees and bushes here and there, largely devoid of animal life."322 From this perspective, the mere thought of valuing biodiver- sity is absurd, much as any attempt to quantify all of earth's planetary amenities as some trillions of dollars per year is ab- surd. But the frustration inherent in enforcing the Convention on International Trade in Endangered Species (CITES) has shown that conservation cannot work without appeasing Homo economicus, the profit-seeking ape. Efforts to ban the interna- tional ivory trade through CITES have failed to stem the slaugh- ter of African elephants.323 The preservation of biodiversity must therefore begin with a cold, calculating inventory of its benefits. Fortunately, defending biodiversity preservation in human- ity's self-interest is an easy task. As yet unexploited species might give a hungry world a larger larder than the storehouse of twenty plant species that provide nine-tenths of humanity's cur- rent food supply.324 "Waiting in the wings are tens of thousands of unused plant species, many demonstrably superior to those in favor."325 As genetic warehouses, many plants enhance the pro- ductivity of crops already in use. In the United States alone, the lates phylogeny" means that the life history of any individual organism replays the entire evolutionary history of that organism's species. genes of wild plants have accounted for much of "the explosive growth in farm production since the 1930s."326 The contribution is worth $1 billion each year.327 Nature's pharmacy demonstrates even more dramatic gains than nature's farm.328 Aspirin and penicillin, our star analgesic and antibiotic, had humble origins in the meadowsweet plant and in cheese mold.329 Leeches, vampire bats, and pit vipers all contribute anticoagulant drugs that reduce blood pressure, pre- vent heart attacks, and facilitate skin transplants.330 Merck & Co., the multinational pharmaceutical company, is helping Costa Rica assay its rich biota.33' A single commercially viable product derived "from, say, any one species among... 12,000 plants and 300,000 insects ... could handsomely repay Merck's entire investment" of $1 million in 1991 dollars.332 Wild animals, plants, and microorganisms also provide eco- logical services.333 The Supreme Court has lauded the pes- ticidal talents of migratory birds.334 Numerous organisms process the air we breathe, the water we drink, the ground we stroll.335 Other species serve as sentries. Just as canaries warned coal miners of lethal gases, the decline or disappearance of indicator species provides advance warning against deeper environmental threats.336 Species conservation yields the great- est environmental amenity of all: ecosystem protection. Saving discrete species indirectly protects the ecosystems in which they live.337 Some larger animals may not carry great utilitarian value in themselves, but the human urge to protect these charis- matic "flagship species" helps protect their ecosystems.338 In- deed, to save any species, we must protect their ecosystems.339 Defenders of biodiversity can measure the "tangible eco- nomic value" of the pleasure derived from "visiting, photograph- ing, painting, and just looking at wildlife."340 In the United States alone, wildlife observation and feeding in 1991 generated $18.1 billion in consumer spending, $3 billion in tax revenues, and 766,000 jobs.341 Ecotourism gives tropical countries, home to most of the world's species, a valuable alternative to subsis- tence agriculture. Costa Rican rainforests preserved for ecotour- ism "have become many times more profitable per hectare than land cleared for pastures and fields," while the endangered go- rilla has turned ecotourism into "the third most important source of income in Rwanda."342 In a globalized economy where commodities can be cultivated almost anywhere, environmen- tally sensitive locales can maximize their wealth by exploiting the "boutique" uses of their natural bounty. The value of endangered species and the biodiversity they embody is "literally . . . incalculable."343 What, if anything, should the law do to preserve it? There are those that invoke the story of Noah's Ark as a moral basis for biodiversity preser- vation.344 Others regard the entire Judeo-Christian tradition, especially the biblical stories of Creation and the Flood, as the root of the West's deplorable environmental record.345 To avoid getting bogged down in an environmental exegesis of Judeo- Christian "myth and legend," we should let Charles Darwin and evolutionary biology determine the imperatives of our moment in natural "history."346 The loss of biological diversity is quite arguably the gravest problem facing humanity. If we cast the question as the contemporary phenomenon that "our descend- ants [will] most regret," the "loss of genetic and species diversity by the destruction of natural habitats" is worse than even "energy depletion, economic collapse, limited nuclear war, or con- quest by a totalitarian government."347 Natural evolution may in due course renew the earth with a diversity of species approximating that of a world unspoiled by Homo sapiens - in ten mil- lion years, perhaps a hundred million.348

#### **Scenario two is agriculture**

#### Despite CO2 fertilization, massive rise of temperature due to warming causes food shortages —the result is extinction.

Strom 7 (Robert, Professor Emeritus of planetary sciences in the Department of Planetary Sciences at the University of Arizona, studied climate change for 15 years, the former Director of the Space Imagery Center, a NASA Regional Planetary Image Facility, “Hot House”, SpringerLink, p. 211-216)

 THE future consequences of global warming are the least known aspect of the problem. They are based on highly complex computer models that rely on inputs that are sometimes not well known or factors that may be completely unforeseen. Most models assume certain scenarios concerning the rise in greenhouse gases. Some assume that we continue to release them at the current rate of increase while others assume that we curtail greenhouse gas release to one degree or another. Furthermore, we are in completely unknown territory. The current greenhouse gas content of the atmosphere has not been as high in at least the past 650,000 years, and the rise in temperature has not been as rapid since civilization began some 10,000 years ago. What lies ahead for us is not completely understood, but it certainly will not be good, and it could be catastrophic. We know that relatively minor climatic events have had strong adverse effects on humanity, and some of these were mentioned in previous chapters. A recent example is the strong El Nin~o event of 1997-1998 that caused weather damage around the world totaling $100 billion: major flooding events in China, massive fires in Borneo and the Amazon jungle, and extreme drought in Mexico and Central America. That event was nothing compared to what lies in store for us in the future if we do nothing to curb global warming. We currently face the greatest threat to humanity since civilization began. This is the crucial, central question, but it is very difficult to answer (Mastrandea and Schneider, 2004). An even more important question is: "At what temperature and environmental conditions is a threshold crossed that leads to an abrupt and catastrophic climate change?'' It is not possible to answer that question now, but we must be aware that in our ignorance it could happen in the not too distant future. At least the question of a critical temperature is possible to estimate from studies in the current science literature. This has been done by the Potsdam Institute for Climate Impact Research, Germany's leading climate change research institute (Hare, 2005). According to this study, global warming impacts multiply and accelerate rapidly as the average global temperature rises. We are certainly beginning to see that now. According to the study, as the average global temperature anomaly rises to 1 °C within the next 25 years (it is already 0.6'C in the Northern Hemisphere), some specialized ecosystems become very stressed, and in some developing countries food production will begin a serious decline, water shortage problems will worsen, and there will be net losses in the gross domestic product (GDP). At least one study finds that because of the time lags between changes in radiative forcing we are in for a 1 °C increase before equilibrating even if the radiative forcing is fixed at today's level (Wetherald et al., 2001). It is apparently when the temperature anomaly reaches 2 °C that serious effects will start to come rapidly and with brute force (International Climate Change Taskforce, 2005). At the current rate of increase this is expected to happen sometime in the middle of this century. At that point there is nothing to do but try to adapt to the changes. Besides the loss of animal and plant species and the rapid exacerbation of our present problems, there are likely to be large numbers of hungry, diseased and starving people, and at least 1.5 billion people facing severe water shortages. GDP losses will be significant and the spread of diseases will be widespread (see below). We are only about 30 years away from the 440 ppm CO2 level where the eventual 2'C global average temperature is probable. When the temperature reaches 3 'C above today's level, the effects appear to become absolutely critical. At the current rate of greenhouse gas emission, that point is expected to be reached in the second half of the century. For example, it is expected that the Amazon rainforest will become irreversibly damaged leading to its collapse, and that the complete destruction of coral reefs will be widespread. As these things are already happening, this picture may be optimistic. As for humans, there will be widespread hunger and starvation with up to 5.5 billion people living in regions with large crop losses and another 3 billion people with serious water shortages. If the Amazon rainforest collapses due to severe drought it would result in decreased uptake of CO2 from the soil and vegetation of about 270 billion tons, resulting in an enormous increase in the atmospheric level of CO2. This, of course, would lead to even hotter temperatures with catastrophic results for civilization. A Regional Climate Change Index has been established that estimates the impact of global warming on various regions of the world (Giorgi, 2006). The index is based on four variables that include changes in surface temperature and precipitation in 2080-2099 compared to the period 1960-1979. All regions of the world are affected significantly, but some regions are much more vulnerable than others. The biggest impacts occur in the Mediterranean and northeastern European regions, followed by high-latitude Northern Hemisphere regions and Central America. Central America is the most affected tropical region followed by southern equatorial Africa and southeast Asia. Other prominent mid-latitude regions very vulnerable to global warming are eastern North America and central Asia. It is entirely obvious that we must start curtailing greenhouse gas emissions now, not 5 or 10 or 20 years from now. Keeping the global average temperature anomaly under 2'C will not be easy according to a recent report (Scientific Expert Group Report on Climate Change, 2007). It will require a rapid worldwide reduction in methane, and global CO2 emissions must level off to a concentration not much greater than the present amount by about 2020. Emissions would then have to decline to about a third of that level by 2100. Delaying action will only insure a grim future for our children and grandchildren. If the current generation does not drastically reduce its greenhouse gas emission, then, unfortunately, our grandchildren will get what we deserve. There are three consequences that have not been discussed in previous chapters but could have devastating impacts on humans: food production, health, and the economy. In a sense, all of these topics are interrelated, because they affect each other. Food Production Agriculture is critical to the survival of civilization. Crops feed not only us but also the domestic animals we use for food. Any disruption in food production means a disruption of the economy, government, and health. The increase in CO2 will result in some growth of crops, and rising temperatures will open new areas to crop production at higher latitudes and over longer growing seasons; however, the overall result will be decreased crop production in most parts of the world. A 1993 study of the effects of a doubling of CO2 (550 ppm) above pre-industrial levels shows that there will be substantial decreases in the world food supply (Rosenzweig et al., 1993). In their research they studied the effects of global warming on four crops (wheat, rice, protein feed, and coarse grain) using four scenarios involving various adaptations of crops to temperature change and CO2 abundance. They found that the amount of world food reduction ranged from 1 to 27%. However, the optimistic value of 1% is almost certainly much too low, because it assumed that the amount of degradation would be offset by more growth from "CO2 fertilization." We now know that this is not the case, as explained below and in Chapter 7. The most probable value is a worldwide food reduction between 16 and 27%. These scenarios are based on temperature and CO2 rises that may be too low, as discussed in Chapter 7. However, even a decrease in world food production of 16% would lead to large-scale starvation in many regions of the world. Large-scale experiments called Free-Air Concentration Enrichment have shown that the effects of higher CO2 levels on crop growth is about 50% less than experiments in enclosure studies (Long et al., 2006). This shows that the projections that conclude that rising CO2 will fully offset the losses due to higher temperatures are wrong. The downside of climate change will far outweigh the benefits of increased CO2 and longer growing seasons. One researcher (Prof. Long) from the University of Illinois put it this way: Growing crops much closer to real conditions has shown that increased levels of carbon dioxide in the atmosphere will have roughly half the beneficial effects previously hoped for in the event of climate change. In addition, ground-level ozone, which is also predicted to rise but has not been extensively studied before, has been shown to result in a loss of photosynthesis and 20 per cent reduction in crop yield. Both these results show that we need to seriously re-examine our predictions for future global food production, as they are likely to be far lower than previously estimated. Also, studies in Britain and Denmark show that only a few days of hot temperatures can severely reduce the yield of major food crops such as wheat, soy beans, rice, and groundnuts if they coincide with the flowering of these crops. This suggests that there are certain thresholds above which crops become very vulnerable to climate change. The European heat wave in the summer of 2003 provided a large-scale experiment on the behavior of crops to increased temperatures. Scientists from several European research institutes and universities found that the growth of plants during the heat wave was reduced by nearly a third (Ciais et al., 2005). In Italy, the growth of corn dropped by about 36% while oak and pine had a growth reduction of 30%. In the affected areas of the mid- west and California the summer heat wave of 2006 resulted in a 35% loss of crops, and in California a 15% decline in dairy production due to the heat-caused death of dairy cattle. It has been projected that a 2 °C rise in local temperature will result in a $92 million loss to agriculture in the Yakima Valley of Washington due to the reduction of the snow pack. A 4'C increase will result in a loss of about $163 million. For the first time, the world's grain harvests have fallen below the consumption level for the past four years according to the Earth Policy Institute (Brown, 2003). Furthermore, the shortfall in grain production increased each year, from 16 million tons in 2000 to 93 million tons in 2003. These studies were done in industrialized nations where agricultural practices are the best in the world. In developing nations the impact will be much more severe. It is here that the impact of global warming on crops and domestic animals will be most felt. In general, the world's most crucial staple food crops could fall by as much as one-third because of resistance to flowering and setting of seeds due to rising temperatures. Crop ecologists believe that many crops grown in the tropics are near, or at, their thermal limits. Already research in the Philippines has linked higher night-time temperatures to a reduction in rice yield. It is estimated that for rice, wheat, and corn, the grain yields are likely to decline by 10% for every local 1 °C increase in temperature. With a decreasing availability of food, malnutrition will become more frequent accompanied by damage to the immune system. This will result in a greater susceptibility to spreading diseases. For an extreme rise in global temperature (> 6 'C), it is likely that worldwide crop failures will lead to mass starvation, and political and economic chaos with all their ramifications for civilization.

#### Reprocessing solves warming in two ways:

#### First, reprocessing is key to a revived U.S. clean energy program that provides leadership to win agreements to cut emissions and solve warming.

Roberts 4 (Paul, Energy Expert and Writer for Harpers, The End of Oil, pg. 325-326)

Politically, a new U.S. energy policy would send a powerful message to the rest of the players in the global energy economy. Just as a carbon tax would signal the markets that a new competition had begun, so a progressive, aggressive American energy policy would give a warning to international businesses, many of which now regard the United States as a lucrative dumping ground for older high-carbon technology. It would signal energy producers — companies and states — that they would need to start making investments for a new energy business, with differing demands and product requirements. Above all, a progressive energy policy would not only show trade partners in Japan and Europe that the United States is serious about climate but would give the United States the leverage it needs to force much-needed changes in the Kyoto treaty. With a carbon program and a serious commitment to improve efficiency and develop clean-energy technologies, says one U.S. climate expert, “the United States could really shape a global climate policy. We could basically say to Europe, ‘Here is an American answer to climate that is far better than Kyoto. Here are the practical steps we’re going to take to reduce emissions, far more effectively than your cockamamie Kyoto protocol.”’ Similarly, the United States would finally have the moral credibility to win promises of cooperation from India and China. As James MacKenzie, the former White House energy analyst who now works on climate issues for the Washington-based World Resources Institute, told me, Chinese climate researchers and policymakers know precisely what China must do to begin to deal with emissions but have thus far been able to use U.S. intransigence as an excuse for their own inaction. “Whenever you bring up the question of what the Chinese should be doing about climate, they just smile. They ask, ‘Why should we in China listen to the United States and take all these steps to protect the climate, when the United States won’t take the same steps itself? With a nudge from the United States, argues Chris Flavin, the renewables optimist at World Watch Institute, China could move away from its “destiny” as a dirty coal energy economy. Indeed, given China’s urgent air quality problems, a growing middle class that will demand environmental quality, and a strategic desire to become a high- tech economy, Flavin says, Beijing is essentially already under great domestic pressure to look beyond coal and is already turning toward alternatives — gas, which is in short supply, but also renewables, especially wind, a resource China has in abundance. Once China’s growing expertise in technology and manufacturing and its cheap labor costs are factored in, Flavin says, it has the basis for a large-scale wind industry — something the right push from the West could set in motion. “As China moves forward,” asks Flavin, “is it really likely to do something that no other country has ever done: run a modern, hightech, postindustrial economy on a hundred-year-old energy source?” Flavin, for one, thinks not. During a visit two years ago to lobby reluctant Chinese government officials to invest in renewable energy, Flavin was pleasantly surprised to find in his hotel parking lot a truck owned by NEG Micon, a Danish company that is one of the world’s largest wind turbine manufacturers. Flavin was elated: “At least one leading renewable-energy company, located halfway around the world, is confident enough of its business prospects in China that it now has its own vehicles in Beijing.”

#### Second, only allowing for reprocessing allows for nuclear power to transition to a carbon free economy fast enough to avoid catastrophic warming – best modeling flows aff.

Chakravorty et al. 12 (Ujjayant (Professor and Canada Research Chair, Alberta School of Business and Department of Economics); Bertrand Magne (OECD Environment Directorate, Paris, France); Michel Moreaux (Emeritus Professor and IDEI Researcher, Toulouse School of Economics, University of Toulouse), “RESOURCE USE UNDER CLIMATE STABILIZATION: CAN NUCLEAR POWER PROVIDE CLEAN ENERGY?”, Journal of Public Economic Theory, Vol. 14, Issue 2, 2012, RSR)

This paper applies a model with price-induced substitution across resources to examine the role of nuclear power in achieving a climate stabilization target, such as that advocated by the Intergovernmental Panel on Climate Change (IPCC). It asks an important policy question: is nuclear power a viable carbon-free energy source for the future? If so, then at what cost? The main insight is that nuclear power can help us switch quickly to carbon free energy, and if historical growth rates of nuclear capacity are preserved, the costs of reaching climate stabilization goals decline signiﬁcantly and may therefore be at the lower end of cost estimates that are reported by many studies. However, it is also clear from our results that nuclear is economical anyway, even without environmental regulation. Regulation only plays a major part when fast breeders are available and that too, in the somewhat distant future, towards the end of the century. To some extent, recent increases in efﬁciency in U.S. nuclear power attest to its economic advantages, even in a market with no environmental regulation (Davis and Wolfram 2011). The climate goal of 550 ppm of carbon can be achieved at a surplus cost of about 800 billion dollars, or about 1.3% of current world GDP, if no nuclear expansion is undertaken. Achieving this goal using nuclear power will result in a tripling of the share of world nuclear electricity generation by mid century with welfare gains of about half a trillion dollars (in discounted terms). The cost of providing energy will decrease by about $1.3 trillion or 2% of current world GDP, compared to the case in which the level of nuclear generation is frozen. These estimates of cost savings from nuclear power are signiﬁcant, and unlike in previous studies, are derived from an economic model with an explicit nuclear fuel cycle. However, nuclear power can be cost-effective for about 50 years or so, beyond which period, other technologies are likely to take over, including renewables, clean coal and next generation nuclear technologies that are much more efﬁcient in recycling waste materials. Ultimately, large-scale adoption of nuclear power will be hindered by the rising cost of uranium and the problem of waste disposal. Only signiﬁcant new developments such as the availability of new generation nuclear technology that is able to recycle nuclear waste may lead to a steady state where nuclear energy plays an important role. 31

#### This is especially true now – we need nuclear power in the interim since renewables are not progressing fast enough.

Harvey 12 (Fiona, Environment Correspondent, “Nuclear power is only solution to climate change, says Jeffrey Sachs”, The Guardian, 5-3-12,

<http://www.guardian.co.uk/environment/2012/may/03/nuclear-power-solution-climate-change>, RSR)

Combating climate change will require an expansion of nuclear power, respected economist Jeffrey Sachs said on Thursday, in remarks that are likely to dismay some sections of the environmental movement. Prof Sachs said atomic energy was needed because it provided a low-carbon source of power, while renewable energy was not making up enough of the world's energy mix and new technologies such as carbon capture and storage were not progressing fast enough. "We won't meet the carbon targets if nuclear is taken off the table," he said. He said coal was likely to continue to be cheaper than renewables and other low-carbon forms of energy, unless the effects of the climate were taken into account.

#### US leadership on nuclear reprocessing leads to a spillover of the technology internationally.

Acton 9 (James, J. associate in the Nonproliferation Program at the Carnegie Endowment for International Peace, Survival, Vol. 51, No. 4, “Nuclear Power, Disarmament and Technological Restraint”, RSR)

Thus, not only does reprocessing clearly not help with facilitating take back, but if advanced nuclear states adopt it as a tool for waste management, it will be virtually impossible for them to argue against others doing likewise. Today, waste management is probably the most important driver for reprocessing. Indeed, the Bush administration’s interest in this technology was born out of a desire to stretch the capacity of Yucca Mountain as far as possible. If the United States and others reprocess they will hand a powerful argument to lobbies within a state – typically the nuclear R&D community – that support the development of reprocessing.

### Plan Text

#### Thus the plan: The United States Federal Government should provide a twenty-percent investment tax credit for the deployment of domestic nuclear fuel recycling.

### Solvency

#### Observation Four: Solvency

#### Tax incentives would solve for reprocessing – makes it commercially more desirable

Lagus 5 (Todd, 2005 WISE Intern, University of Minnesota, WISE, “Reprocessing of Spent Nuclear Fuel: A Policy Analysis” <http://www.wise-intern.org/journal/2005/lagus.pdf>, RSR)

The economic analysis shows that the reprocessing or even the once through nuclear cycle is not yet economically desirable to investors. However, changes in government policies, including environmental regulations already mentioned and economic policies, could improve the competitiveness of both technologies. The University of Chicago nuclear power study analyzes the effects of government involvement in the future of the once through cycle using several different forms of support: loan guarantees, accelerated depreciation, and investment tax credits. Loan guarantees in this case refer to the obligation of the government to repay part of the loan should a utility company not be able to repay. The 2005 Energy Bill, which passed in July 2005, would make advanced nuclear power plants eligible for federal loan guarantees and provide a tax credit for nuclear power production. This would lessen the risks associated with capital costs for investors, and according to the Chicago study, reduce the LCOE for a nuclear reactor by 4 mills/kWh to 6 mills/kWh. The next financial subject, accelerated depreciation, refers to the ability of an investor to utilize the investment tax deductions early on in the lifetime of the payment rather than receive the same deduction each year in a linear fashion. Accelerated depreciation helps investors absorb capital costs, which for nuclear power generation are large. The University of Chicago study calculates a reduction in the LCOE for a 7 year depreciation policy of 3 mills/kWh to 4 mills/kWh. Tax incentives for nuclear power production are the final policies that could make nuclear power and reprocessing more desirable. An investment tax credit of 10 percent would create an LCOE reduction between 6 mills/kWh and 8 mills/kWh, while a 20 percent credit could create cost reductions between 9 mills/kWh and 13 mills/kWh. 39 Production tax credits on a per kWh basis may also be used. Since reprocessing and the once through cycle are not appreciably different for the price, it is sufficient to assume 12 that similar effects for all three of these government policies would occur with policies applied to reprocessing. While it is no secret that monetary incentives would help the nuclear reprocessing investments, there is still the question of whether or not the government should provide economic support to the industry. As with any government funding, it is politically important not to be viewed by other energy generation industries, i.e. gas and coal, as favoring nuclear power over other sources. Given the recent concerns for global warming, tax incentives and loan guarantees for nuclear technologies seem like a realistic option especially in the absence of emission regulations. Accelerated depreciation also is an unobtrusive option that could help the industry by easing capital costs.

#### Government investment key – necessary to mitigate risks from government regulations.

Selyukh 10 (Alina, Staff Writer, “Nuclear waste issue could be solved, if...”, 8-17-10, Reuters,

<http://www.reuters.com/article/2010/08/17/us-nuclear-waste-recycling-idUSTRE67G0NM20100817>, RSR)

Since the U.S. agency declared spent fuel reprocessing too costly, U.S. research into new technologies has slowed. President George W. Bush offered federal backing for nuclear waste management alternatives, but over the years the policy has meandered and had few incentives to lure companies, said Steven Kraft, senior director of used-fuel management at the Nuclear Energy Institute, the industry's trade organization. Being able to burn through rather inexpensive uranium to produce energy, companies are wary of investing millions into recycling technology that may go against the national policy. Still, industry support for the ideas is strong, if not for the procedure itself then for allowing the market -- not the government -- to determine its cost-effectiveness and fate. Duke Energy, which operates seven nuclear plants, would support nuclear recycling if there was a cost-effective national policy, spokeswoman Rita Sipe said. GE Hitachi has proposed a new generation of fast reactors that, they say, could return to the grid up to 99 percent of energy contained in the uranium, compared to recovering 2 or 3 percent from a common light water reactor. But they want federal support for more research and, ultimately, commercialization of the technology, said chief consulting engineer Erik Loewen. That support, in essence, would have to come in a form of subsidies such as cost sharing or loan guarantees, said Jack Spencer, nuclear energy policy research fellow at the Heritage Foundation think tank. "What the industry needs... is something to mitigate government-imposed risks," he said of the regulatory regime.

#### Government investment necessary – provides appropriate risk mitigation and shortens the timeframe for completion.

IAEA 8 (International Atomic Energy Agency, “Spent Fuel Reprocessing Options”, August 2008, RSR)

With the expected high costs and significant risks involved in constructing new nuclear facilities, e.g., reprocessing facilities, the impact of various ownership options need to be considered. These options include government funding, regulated funding, private funding, and combinations of public and private funding. These different funding approaches may significantly impact the costs of fuel cycle services. Given the very long time frames associated with building reprocessing facilities, there exist risks other than technological or economic, which need to be dealt with. These include evolving government policy, public and political acceptance, and licensing risks. As a result, private investors are unlikely to provide capital unless the initial high risks factors are mitigated through appropriate risk sharing agreements (e.g., loan guarantees, equity protection plans, tax credits, etc.) with government entities.

## 2AC

### T – Energy Production

#### We meet: Nuclear fuel recycling is energy production.

World Nuclear Association 12 [Processing of Used Nuclear Fuel, http://www.world-nuclear.org/info/inf69.html]

Used nuclear fuel has long been reprocessed to extract fissile materials for recycling and to reduce the volume of high-level wastes. ¶ New reprocessing technologies are being developed to be deployed in conjunction with fast neutron reactors which will burn all long-lived actinides. ¶ A significant amount of plutonium recovered from used fuel is currently recycled into MOX fuel; a small amount of recovered uranium is recycled. ¶ A key, nearly unique, characteristic of nuclear energy is that used fuel may be reprocessed to recover fissile and fertile materials in order to provide fresh fuel for existing and future nuclear power plants. Several European countries, Russia and Japan have had a policy to reprocess used nuclear fuel, although government policies in many other countries have not yet addressed the various aspects of reprocessing.¶ Over the last 50 years the principal reason for reprocessing used fuel has been to recover unused uranium and plutonium in the used fuel elements and thereby close the fuel cycle, gaining some 25% more energy from the original uranium in the process and thus contributing to energy security. A secondary reason is to reduce the volume of material to be disposed of as high-level waste to about one fifth. In addition, the level of radioactivity in the waste from reprocessing is much smaller and after about 100 years falls much more rapidly than in used fuel itself.¶

#### Also, we’re not r&d. We provide a tax credit for nuclear fuel recycling technology in the SQUO, meaning we meet their second interpretation too. Tech exists.

Lagus, 2005 WISE Intern, ‘5

[Todd, University of Minnesota, WISE, “Reprocessing of Spent Nuclear Fuel: A Policy Analysis”

<http://www.wise-intern.org/journal/2005/lagus.pdf>, RSR]

In the case of the newer UREX+ technology, the long-lived fission products create more steps in weapons deployment. The new technologies for reprocessing including transmutation would not involve separating pure plutonium, but rather a plutonium/ actinide mixture that would increase the toxicity of the material and protect it from theft and handling. The International Atomic Energy Agency’s (IAEA) standard for self protection requires 1 Sievert/hr (100 rems/hr) at one meter. Five Sieverts is a median lethal dose. 45 This technology again has been demonstrated in laboratories, but a great deal of research is still underway. The actinides also contaminate the plutonium such that it would not be usable as a weapon without sophisticated chemical separation technologies, which few countries, if any, possess. 46 Some argue that there are many other weapons options which are cheaper and easier to fabricate should an enemy decide to strike. 47

#### Counter interpretation:

#### The aff has to affect both resource extraction and conversion into energy

Australian Government, Department of Climate Change and Energy Efficiency 2011 [“Energy Production and Consumption,” http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energy-reporting/publications/supplementary-guidelines/energy-production-consumption.aspx]

Production of energy: in relation to a facility, means the:

1. extraction or capture of energy from natural sources for final consumption by or from the operation of the facility or for use other than in the operation of the facility
2. manufacture of energy by the conversion of energy from one form to another form for final consumption by or from the operation of the facility, or for use other than in the operation of the facility (regulation 2.23(3) NGER Regulations).

#### We meet the counter-interpretation: recycling involves both the act of reprocessing the used fuel and using it to create new nuclear energy.

#### Our interp good:

A. Predictability – Only our interpretation guarantees link arguments to both extraction and the burning of resources to produce energy. This is crucial link ground for pollution DAs and domestic/foreign energy tradeoff DAs.

B. Limits: Requiring the aff to both extract and convert the energy is necessary to eliminate affs that only extract, like capture carbon or methane or stockpile oil as a strategic military reserve with heg advantages. Also key to prevent affs that only burn fuels like Bataille-style affs that encourage rapid consumption or R&D affs that incentivize new ways to burn the same resources.

#### Their interp bad:

#### They get rid of all uranium extraction affs because extraction from waste is identical to extraction from the ground. This means they get rid of oil and natural gas extraction affs which is literally half the topic.

#### Competing interpretations are bad: Race to the bottom: they’re just trying to limit out one more case

#### Prefer reasonability: as long as we’re reasonably topical, there’s no reason to pull the trigger. Don’t vote on potential abuse.

### Solvency

#### The waste confidence rule has no real impact on licensing.

Davis and Blee 12. [Edward, President of the Pegasus Group and a former President of the American Nuclear Energy Council, David, former U.S. Deputy Assistant Secretary of Energy and Executive Director of the U.S. Nuclear Infrastructure Council, "EDWARD DAVIS AND DAVID C. BLEE: NRC’s Waste Confidence ‘Moratorium’ – Carpe Diem" Nuclear Town Hall -- August 16 -- www.nucleartownhall.com/blog/category/doe/]

The United States Nuclear Regulatory Commission’s (NRC) August 7, 2012 order to defer any final agency action approving the issuance of new reactor licenses or to grant new license renewals for existing operating reactors — in response to a Federal Appeals Court remand of the agency’s existing waste confidence rule — does not represent the draconian “Full-Stop” that the some of the industry’s opponents claim. ¶ Under the order, the agency will continue with its technical and licensing reviews while holding any final decisions in abeyance until the NRC has developed and completed its work responsive to the Court’s remand. Accordingly, the Order could impact very few, if any, near-term combined license (COL) applications. Moreover, under the NRC’s rules for license renewals, no operating plant would be directly affected where a timely renewal license application has already been submitted to NRC. Current spent fuel storage is certainly safe and not in question.

### Guidance Document CP

#### Perm do both. Pass both the plan and the counterplan. The result of passing both is that an investment is done but the plan is passed unconditionally. Fixes net benefit with doing the <whatever they do>.

#### Guidance documents link to politics- people hate the Obama ones

Nelson 2011 [Gabriel March 23, Greenwire “Bush's Rulemaking Czar Blasts EPA's Use of 'Guidance'” New York Times http://www.nytimes.com/gwire/2011/03/23/23greenwire-bushs-rulemaking-czar-blasts-epas-use-of-guida-47538.html?pagewanted=all]

As businesses and states challenge U.S. EPA's new regulations on greenhouse gas emissions, coal mining and water pollution, they are putting increasing pressure on the agency's use of "guidance" to explain the rules of the road. Agencies have used guidance documents for decades to explain how they will interpret existing laws, often while they are working on new regulations. But some of the Obama administration's memos have been maligned by businesses, which say that the guidance documents are being used to change the rules without taking public comment or consulting with the rest of the administration.

#### Perm do the CP.

#### a. This is legitimate because they’re not textually competitive.

#### b. This limits out abusive counterplans like the dollar PIC and the period PIC which are completely unpredictable – infinite number of processes that could be changed, coopt the entirety of the 1AC, which forces us to argue against ourselves. This CP is only legitimate as a normal means CP for which they must read evidence.

#### c. Process PICs are artificially competitive because they overinflate the value of a contrived net benefit.

#### d. Process PICs are illegitimate because they add to the plan and are plan plus. They haven’t read any evidence which would indicate that specification of the process that would make the CP competitive is topical.

#### The CP cannot solve – guidance documents are for regulations. They cannot provide money in and of themselves.

#### Need a clear, unified signal for companies to get on board – CP doesn’t do that.

Duarte ‘11

[Gary J , “US Nuclear Energy Foundation A little of our opinion about nuclear fuel reprocessing”, U.S. Nuclear Energy Foundation, 10-12-2011, http://usnuclearenergy.org/REPROCESSING.htm]

To begin with the massive upfront costs related to the nuclear energy industry and exhaustive regulation systems that are applied by U. S. agencies to nuclear power plants are responsible for making them the safest large volume 24/7 365 energy producers on the planet. At the same time, we have been trying for 30 years to make renewable sources cost effective and this challenge continues. We have not educated the public throughout the world that nuclear energy “economics” must be “projected” at 60 to 100 years of “operation” as these are what the plants are designed for. Now, these are not “estimates” we have thirty years of nuclear plant track records and zero public fatalities in the U. S. This is unprecedented in ANY other base load power generation method on the planet. The long and short of the reprocessing assessment, since President Reagan “lifted” the U. S. ban on commercial reprocessing of spent nuclear fuels in 1981 has always been the economics (some still believe it is banned, it’s not). A commercial reprocessing facility with the capacity to complete between 800 and 1,000 metric tons annually may cost 10 billion dollars to build in China’s “economics” but 30 billion to build in the U. S. economics. For the past 30 years nearly all of the indecisiveness related to a U. S. reprocessing direction has been the difficulty in facing the economics. Also, over these years, technology has advanced several new and/or different methods for reprocessing, basically introducing yet another decision dilemma. This is why such intense projects have to be decided by the “science community” because the “political community” changes every four-eight years and the capacity to focus is lost. In essence, the DOE and NRC have failed to enlighten Congress and the American public to the scientific need and economic commitment to make reprocessing a “national initiative”; this is what needs to be done. Its costs can only be justified if the program is “painted” as a 100 year mission. Remember, many of us are convinced that America still needs another 150 new nuclear plants to serve our future energy growth and be “energy cost competitive” worldwide. And still, these added plants will also need 6% FINAL deep geologic storage. Then there are those who say that Thorium fuels, pebble bed reactors, etc. will eliminate everything in today’s nuclear waste cycle. Some of our “reality” friends will say many of these are STILL laboratory projects and we will get there in time . . . but we need to START builds based on “TODAY’S functioning technology” over the next twenty years then see wshere the lab projects are at that time. These same “technology advances” will be occurring with solar and wind, biomass, etc. We must drive these technologies scientifically, but build today’s projects economically. “If” we were to consider a full scale reprocessing facility; estimates are about 12,000 jobs, including 1,000 design jobs during the construction and about 2,500 permanent jobs for decades of operation. A project of this magnitude has the potential to evoke a substantial economic impact on any community and create up to 70,000 jobs overall. Based on the current costs of natural uranium fuel, the “potential value” of the current U. S. stockpile of 66,000 metric tons of commercial reactor spent nuclear fuel would be; $130,000 X 66,000 tons = 8,580,000,000 (8 billion 580 million dollars). We looked at the values of two different opinions, to determine an estimated value of 7 to 11 billion dollars with its reprocessed cost price competitive to natural uranium fuel costs after enrichment. And, as one can see, our current stockpile is only 1/3 the cost for the facility. Now, as we mentioned above, as we build 150 new plants those 6% waste additions will amortize our 30 billion dollar reprocessing facility over 60 – 100 years, fully amortize its cost and generate revenue. (Maybe even be foolish enough to offer “our reprocessing services” to other countries for income and American jobs). With the “experience” of negative U. S. political interests in a strong nuclear build and reprocessing, NO private company or investors are going to risk building such a facility until they see the full “long term” support of the politics and public policy in America as a “national initiative”. This is the single largest deterrent to “commercial scale” reprocessing in the U. S. The science and engineering is accomplished, proven and functional. This entire dialogue that America has studied for 30 years is a fundamental reason that “We the People” must speak up and “separate science from politics” and allow technology to advance the sciences we need to benefit our lives and as a nation be “energy economically competitive”. Science and engineering understand the U. S. need for expanding our nuclear fleet but the government does not, putting most of its attention on (still expensive) renewable energy with only a few waving the nuclear flag. No matter what administration is at the helm, government MUST re-affirm our need for nuclear expansion. Again here, it needs to be a “national initiative”. Nuclear should be re-classified as “green” and allotted government commitment. The nuclear industry has been wrongly battered by government and the environmental movements for years. It needs government to offer the industry 30 – 50% investment tax credits or working loan guarantees for all who build carbon free baseload power, or a tax holiday for the first ten years of operation of carbon free facilities. These incentives would be available to wind, solar and nuclear development. We must raise the success potential for such projects which have been unfairly brutalized in the past.

#### CP isn’t enforced fast enough- new guidance takes a while to become accepted

Gehan 2012 [Shaun M. Kelley Drye & Warren LLP May 15 “EPA issues new guidance on fracking with diesel fuels” http://www.lexology.com/library/detail.aspx?g=d67a341e-7c29-4b8b-aa3f-a1d3495d039f]

It will take years of operation under these draft guidelines (and we would not be surprised if they never go final) to see if the recommendations become de facto permit requirements. In the end, however, it will likely make little difference. Businesses will either conform or eliminate the use of diesel in fracking fluids. If the conditions prove too onerous and unworkable or permits become too hard to obtain, avenues other than litigation will likely prove more fruitful. Indeed, providing comments may be the best initial course. The guidelines may never go final, but there is a chance that EPA will issue a revised draft based on public input.

#### Lack of reprocessing permissions killing US-South Korea relations now - viewed by SK as a matter of national sovereignty.

Manyin, et al., ‘12

[Mark (Coordinator and Specialist in Asian Affairs at CRS); Emma Chanlett-Avery (Acting Section Research Manager at CRS); and Mary Nitkin (Specialist in Nonproliferation at CRS), “U.S.-South Korea Relations”, Congressional Research Service, 5-15-12, RSR]

The current U.S.-Korea nuclear cooperation agreement, as with other standard agreements, 66 requires U.S. permission before South Korea can reprocess U.S.-origin spent fuel, including spent fuel from South Korea’s U.S.-designed reactors. 67 This is because reprocessing can create new fuel or plutonium for weapons use. The issue has become a sensitive one for many South Korean officials and politicians, who see it as a matter of national sovereignty. The United States has been reluctant to grant such permission due to concerns over the proliferation potential of this technology, the potential impact on negotiations with North Korea, and the possible contradiction with global nonproliferation policy to prevent enrichment and reprocessing plants in new states.

#### Alliance credibility key to deterring NK conflict

McDevitt ’11 **–** vice president and director of the CNA Strategic Studies

(Michael McDevitt, “Deterring North Korean Provocations”, Brookings Institution, February 2011, http://www.brookings.edu/research/papers/2011/02/north-korea-mcdevitt)

Since the Armistice that ended the fighting in Korea in 1953, the U.S.-ROK alliance has been **successful** in preventing another North Korean invasion. The basic approach has been to present such a formidable defensive posture that the North would **never believe it had an opportunity** to forcefully reunify the country under its leadership. In other words, North Korea has successfully been deterred. Alliance strategy has worked so well that today the prospect of an attempt by North Korea to militarily reunite the peninsula is judged by many to be incredible. Setting aside the question of whether Pyongyang still has the desire to solve the Korean civil war by force of arms, some argue that North Korea no longer has the capability to invade successfully, even if it wanted to. Still, both the U.S. and ROK armed forces take the possibility of another invasion, however remote, seriously. The alliance’s Combined Forces Command (CFC) worries about the possibility of a surprise, or short warning attack, because North Korea has positioned much of its Korean People’s Army (KPA) close to the DMZ where it could undertake offensive operations in short order. Deterrence as Practiced Today in Korea “Broadly defined, deterrence is the threat of force intended to convince a potential aggressor not to undertake a particular action because the costs will be unacceptable or the probability of success extremely low.”[1] In other words, deterrence comes in two forms—deterrence by punishment and deterrence by denial. In the first instance, potential aggressors are deterred by the prospect of having to endure unacceptable punishment in response to an aggressive act. In the second case, deterrence by denial, the potential aggressor is deterred because defenses are so good that the aggressor concludes that it could not achieve its political and military objectives through use of force. In Korea, the U.S.-ROK alliance combines both of these approaches—a strong defense that can deny success, buttressed with the promise of overwhelming retaliation in the event of an invasion from the north. For either of these forms of deterrence to be successful what is threatened in response to aggression or a hostile act must be believable, or as it is commonly cast, must be credible. Credibility in turn, derives from a combination of military capability and a belief in the minds of North Korean leaders that the alliance has the political will to act. There is no doubt that the U.S.-ROK allies have the political will to respond to an invasion; hence the conditions necessary for a credible deterrent, capability and political will, are met.

#### The chance for escalation is high—North Korea will provoke South Korea to test its new leadership

Cha ‘12- professor at Georgetown University; senior advisor and Korea chair at the Center for Strategic and International Studies

(Cha, Victor D. “Kim Jong Un Is No Reformer”. August 21, 2012. http://www.foreignpolicy.com/articles/2012/08/21/kim\_jong\_un\_is\_no\_reformer)Let me be blunt: The North Korean regime will not change because Little Kim studied in Switzerland, likes Mickey Mouse, and has a hot wife. If anything, another crisis could be looming: The death of Kim Jong Il and the politics of an unstable leadership transition, a new "get-tough" attitude in Seoul, and U.S. and South Korean electoral cycles constitute a unique confluence of escalation that has not been seen on the peninsula since the 1990s. This could spell another nuclear crisis with North Korea, or even worse, military hostilities that could threaten the peace and prosperity of the region. The Obama administration stopped trying to engage Pyongyang after its April 2012 missile launch, which North Korea announced just 16 days after a food-for-nuclear-and-missile-freeze deal with the United States. Stung by the launch, the Obama administration immediately called off the deal and gave up on its last chance to get IAEA inspectors into North Korea's nuclear facilities at Yongbyon. The launch, which North Korea claimed was for a weather satellite but tested ballistic missile technology banned by the U.N. Security Council, exploded an embarrassing 81 seconds after liftoff. The spectacular failure of Kim's first major public act almost ensures that another provocation is in the offing. He lacks the revolutionary credentials his grandfather earned as a guerrilla fighter against the Japanese. Unlike his father, he does not have a decade of training and preparation for the job. Without serving a day of military service, in September 2010 the junior Kim was made a four-star general and foisted to the top of the power structure at the age of 26 or 27. Even for North Koreans, who expect their leaders to start young so that they can rule for decades, this is a stretch. So **Kim must prove himself** -- be it **through** another missile launch, a nuclear test, or **a military provocation** against Seoul. But South Koreans are fed up. Since North Korea torpedoed a South Korean navy ship in March 2010 and shelled an island a few months later in attacks that killed sailors and civilians, the government and public no longer preach patience and stability so as not to rattle the South Korean stock market. South Korean military leaders have re-written their military rules of engagement. They are now prepared to retaliate for the next military act, possibly even going after command structures in North Korea, which could ignite a full-scale war on the peninsula. The South Korean conservative political contender for the presidential election in December, moreover, is in no mood to look weak on North Korea. Even if the long-shot liberal candidates who preach engagement with the North were to win, Pyongyang has a history of provoking a newly elected leader in the South to show who is the alpha dog on the peninsula, in which case, public pressure for a strong response would be difficult to ignore. Based on my research of U.S.-North Korea negotiations since 1984, within an average of five months after a provocation Washington is usually back at the bargaining table, often because it wants to de-escalate a crisis. The Obama administration, facing a tough election, is not interested in offering exit ramps to North Korea, for fearing of being denounced as weak by Republicans. Optimists often cite China as the answer to avoiding another crisis. The mid-August meetings between the Chinese and Kim's uncle, Jang Song-taek, may be a prelude to more economic deals and even a visit by the new leader to Beijing. But China cannot restrain Pyongyang from belligerence; and it cannot reform North Korea's family-run regime, no matter how many bureaucrats it offers to train. It can only bribe them to return temporarily to a negotiating table that is now empty of other willing partners. The only thing missing right now is a spark. Perhaps North Korea's new leader is busy amusing himself with Disney and his new lovely wife instead of dealing with problems like the flooding that has ravaged the countryside. NGOs report that the food shortage situation is worsening. And the rogue nuclear and missile programs continue to expand. Infighting within the regime is likely intensifying, manifested in the surprise sacking in July of the country's top military general, Ri Yong-ho. Some interpret Ri's departure as evidence of the young reform-minded Kim trying to usurp power from the hard-line military.

#### East Asian instability leads to World War III

Knight Ridder 2k

(Jonathon S. Landay, “Top administration officials warn stakes for U.S. are high in Asian conflicts”, 3-11, L/N)

Few if any experts think China and Taiwan, North Korea and South Korea, or India and Pakistan are spoiling to fight. But **even a minor miscalculation by any of them could destabilize Asia, jolt the global economy and even start a nuclear war**. India, Pakistan and China all have nuclear weapons, and North Korea may have a few, too. **Asia lacks the kinds of organizations, negotiations and diplomatic relationships that helped keep an uneasy peace for five decades in Cold War Europe. "Nowhere else on Earth are the stakes as high and relationships so fragile**," said Bates Gill, director of northeast Asian policy studies at the Brookings Institution, a Washington think tank. "**We see the convergence of great power interest overlaid with lingering confrontations with no institutionalized security mechanism in place. There are elements for potential disaster**."

### Immigration Politics

#### **PC isn’t real —butterfly effect – only winners win.**

Hirsh 2/9 (Michael, chief correspondent for National Journal, previously served as the senior editor and national economics correspondent for Newsweek, 2/9/2013, “There’s No Such Thing as Political Capital,” <http://www.nationaljournal.com/magazine/there-s-no-such-thing-as-political-capital-20130207>, NP)

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.”

#### Fiat solves the link – won’t be perceived.

#### Plan popular and Graham shields the link.

Russell 2-5 (Pam Radtke, Budget Cutters Eye Nuclear Reprocessing Plant, Roll Call, 5 February 2013, http://www.rollcall.com/news/budget\_cutters\_eye\_nuclear\_reprocessing\_plant-222173-1.html?pg=1, da 2-14-13)

The scrutiny is raising concern among the project’s supporters, especially with across-the-board spending cuts set to kick in next month unless Congress acts to postpone them or enact an alternative austerity plan.¶ “We must stay the course and create a pathway to safely and responsibly dispose of weapons grade plutonium,” Rep. Joe Wilson, R-S.C., wrote in a letter he has been circulating among his colleagues that would urge the White House to preserve the project. “If we fail to uphold our end of this agreement, dire consequences could be felt by our close allies across the globe, as Russia may choose not to honor its end of the agreement.”¶ The MOX facility has survived earlier challenges. Former Rep. David L. Hobson, R-Ohio, said his efforts to kill funding for the project when he served as Energy and Water Appropriations Subcommittee chairman were thwarted by the political clout of South Carolina lawmakers — including fiscal conservatives such as Wilson, Sen. Lindsey Graham and former Sen. Jim DeMint.¶ Hobson described the project as a jobs program for South Carolina. In addition to the 2,600 employees now working on it, the completed facility will require permanent workers to operate it for up to two decades. The plant is part of the larger Savannah River Site in South Carolina, an Energy Department-managed site that employs 12,000.¶ Hobson said one of the biggest regrets of his tenure was agreeing to back off efforts to end the project when he was told they could hurt Republican Gov. Mark Sanford’s re-election chances in 2006.¶ “I got rolled,” Hobson said.¶ Laura Peterson of Taxpayers for Common Sense, which has called for an end to the project, said conservative Republicans who otherwise might be expected to complain about cost overruns are deterred by the support it enjoys from Graham. And Hobson said DeMint — a leading champion of small government and spending cuts who now heads The Heritage Foundation — never suggested killing the MOX program.¶ “This is worse than earmarks,” Hobson said. “This is appalling.”¶ Neither Graham’s nor DeMint’s staffs responded to requests to comment on the project, but Wilson and other supporters say it is vital to fulfilling the 2000 arms deal with Russia. Failing to move ahead with the program, Wilson warned, could lead the Russians not to honor its end of the agreement.

#### Logical policy maker can do both.

#### CIR won’t pass – amnesty and enforcement concerns, and Obama tanks the deal – released draft proves

Cohen 2-19 (Tom, Immigration debate: high-stakes political poker, CNN, http://www.cnn.com/2013/02/18/politics/immigration-politics/index.html, da 2-22-13)

Whether a political ploy or bona fide proposal, a leaked version of President Barack Obama's draft immigration plan raised Republican hackles while bringing some additional focus to the debate.¶ The draft plan reported over the weekend by USA Today and confirmed to CNN by an administration official included a possible path to coveted permanent residency in eight years for most of the nation's estimated 11 million undocumented immigrants.¶ It also called for steps to strengthen border security and the E-Verify system to check the immigration status of workers.¶ GOP critics pounced, with some objecting to any form of what they label "amnesty" for those in the country illegally. Others accused Obama and the White House of dirty tricks by going public with their draft as a bipartisan group of senators works on a possible agreement.¶ Conservative Sen. Jeff Sessions of Alabama complained on Monday that both the Obama draft and the talks involving the Senate's so-called Gang of Eight seek to "confer legal status and work authorization on Day One in exchange for promises of future enforcement on which this administration will never deliver."¶ "Perhaps this leak, and what it reveals, may mark the beginning of the collapse of this new scheme to force through a fatally flawed plan," Sessions said in a statement.¶ Others accused Obama of deliberately floating an unacceptable plan so that Republicans would reject it, bringing the party further disfavor from Hispanic Americans, the nation's fastest-growing demographic.¶ "Does the president want a result, or does he want another cudgel to beat up Republicans so that he can get political advantage in the next election?" veteran GOP Sen. John McCain of Arizona said Sunday on NBC's "Meet the Press."¶ To former Rep. Connie Mack, a Florida Republican, "a little bit of this is show from everyone, including the president's side."¶ Regardless of how it happened, the leak of Obama's plan "plays into the fears" of Republicans that the president prefers keeping the issue alive for political advantage, Mack told CNN on Monday.¶ His wife -- former Republican Rep. Mary Bono Mack of California -- agreed that the leak added to what she called an already deep trust deficit in Washington.¶ "The American people would be astonished if they knew how little trust existed between the two parties when we have to work together like this," Bono Mack said on CNN.

#### Bottom of the docket – won’t be voted upon until after immigration.

#### Senate Democrats block in SQUO – Obama has to reach out to them.

Kromm 2-21 (Chris, “Will Southern Democrats derail immigration reform?”, The Institute for Souther Studies,

<http://www.southernstudies.org/2013/02/will-southern-democrats-derail-immigration-reform.html>, RSR)

Ever since President Obama announced his intention to fight -- again -- for broad-ranging immigration reform in his Feb. 13 State of the Union address, media coverage has been dominated by his struggle to find common ground with the so-called Gang of Eight key U.S. Senators, including Florida Republican Sen. Marco Rubio.¶ But Obama's biggest obstacle to pushing through reform in the coming months may be a Gang of Seven Senate Democrats -- including four in the South -- who face difficult elections in 2014 and will be carefully calculating the political pros and cons of embracing Obama's immigration overhaul.¶ Shortly after Obama's speech, Larry Sabato's Center for Politics reported that "the seven most imperiled [U.S. Senate] seats in the whole country are all currently held by Democrats." The top battlegrounds include seats currently held by Sens. Kay Hagan in North Carolina, Mary Landrieu in Louisiana and Mark Pryor in Arkansas, as well as an open seat vacated by retiring Sen. Jay Rockefeller of West Virginia.¶

#### Senate democrats love nuclear power.

Bartash, ‘11

[Jeffry, “Democrats warm to nuclear, domestic drilling”, 4-15-11, Marketwatch

<http://articles.marketwatch.com/2011-04-15/economy/30789692_1_nuclear-power-nuclear-plants-nuclear-energy>, RSR]

WASHINGTON (MarketWatch) — At a hearing this week, Democratic Sen. Tom Carper of Delaware asked one of the nation’s top regulators how many Americans have been killed by nuclear power. ”There are no known fatalities in the U.S. from the use of nuclear energy,” replied Gregory Jaczko, chairman of the Nuclear Regulatory Commission. Carper then turned to Lisa Jackson, administrator of the Environmental Protection Agency. He asked her how many people have been killed or had their lives shortened by the use of pollution-emitting fossil fuels. Tens of thousands, she said. The senator sat back in his chair and nodded. “All sources of energy involve risks,” he said. Carper, a longtime supporter of nuclear power, is not the only Democrat who’s weighing every option available on how to fuel the massive U.S. economy. Many other members of his party are as well — no doubt egged on by soaring gas prices and public discontent. And while Democrats aren’t chanting “drill, baby, drill,” they appear to be concluding that nuclear power and more domestic drilling, once anathema, are vital to America’s energy future. At several hearings this week, nary a word was said about abolishing nuclear power despite the recent disaster in Japan. And Democrats say the are open to drilling for more natural gas in the continental U.S. despite growing concerns over an extraction practice called “fracking.”

### Tech K

#### Our interpretation is that debate should be a question of the aff plan versus a competitive policy option or the status quo.

#### This is key to ground and predictability – infinite number of possible kritik alternatives or things the negative could reject explodes the research burden. That’s a voting issue.

#### Policies matter – effective energy choices depend on technical political literacy

Hodson, professor of education in the Ontario Institute for Studies at the University of Toronto, ‘10

[Derek, “Science Education as a Call to Action,” Canadian Journal of Science, Mathematics and Technology Education, Vol. 10, Issue 3, p. 197-206]

\*\*note: SSI = socioscientific issues

The final (fourth) level of sophistication in this issues-based approach is concerned with students findings ways of putting their values and convictions into action, helping them to prepare for and engage in responsible action, and assisting them in developing the skills, attitudes, and values that will enable them to take control of their lives, cooperate with others to bring about change, and work toward a more just and sustainable world in which power, wealth, and resources are more equitably shared. Socially and environmentally responsible behavior will not necessarily follow from knowledge of key concepts and possession of the “right attitudes.” As Curtin (1991) reminded us, it is important to distinguish between caring about and caring for. It is almost always much easier to proclaim that one cares about an issue than to do something about it. Put simply, our values are worth nothing until we live them. Rhetoric and espoused values will not bring about social justice and will not save the planet. We must change our actions. A politicized ethic of care (caring for) entails active involvement in a local manifestation of a particular problem or issue, exploration of the complex sociopolitical contexts in which the problem/issue is located, and attempts to resolve conflicts of interest. FROM STSE RHETORIC TO SOCIOPOLITICAL ACTION Writing from the perspective of environmental education, Jensen (2002) categorized the knowledge that is likely to promote sociopolitical action and encourage pro-environmental behavior into four dimensions: (a) **scientific and technological knowledge** that informs the issue or problem; (b) knowledge about the underlying social, political, and economic issues, conditions, and structures and how they contribute to creating social and environmental problems; (c) knowledge about how to bring about changes in society through direct or indirect action; and (d) knowledge about the likely outcome or direction of possible actions and the desirability of those outcomes. Although formulated as a model for environmental education, it is reasonable to suppose that Jensen's arguments are applicable to all forms of SSI-oriented action. Little needs to be said about dimensions 1 and 2 in Jensen's framework beyond the discussion earlier in the article. With regard to dimension 3, students need knowledge of actions that are likely to have positive impact and knowledge of how to engage in them. It is essential that they gain robust knowledge of the social, legal, and political system(s) that prevail in the communities in which they live and develop a clear understanding of how decisions are made within local, regional, and national government and within industry, commerce, and the military. Without knowledge of where and with whom power of decision making is located and awareness of the **mechanisms by which decisions are reached**, intervention is not possible. Thus, the curriculum I propose requires a concurrent program designed to achieve a measure of political literacy, including knowledge of how to engage in collective action with individuals who have different competencies, backgrounds, and attitudes but share a common interest in a particular SSI. Dimension 3 also includes knowledge of likely sympathizers and potential allies and strategies for encouraging cooperative action and group interventions. What Jensen did not mention but would seem to be a part of dimension 3 knowledge is the nature of science-oriented knowledge that would enable students to appraise the statements, reports, and arguments of scientists, politicians, and journalists and to present their own supporting or opposing arguments in a coherent, robust, and convincing way (see Hodson [2009b] for a lengthy discussion of this aspect of science education). Jensen's fourth category includes awareness of how (and why) others have sought to bring about change and entails formulation of a vision of the kind of world in which we (and our families and communities) wish to live. It is important for students to explore and develop their ideas, dreams, and aspirations for themselves, their neighbors and families and for the wider communities at local, regional, national, and global levels—a clear overlap with futures studies/education. An essential step in cultivating the critical scientific and technological literacy on which sociopolitical action depends is the application of a social and political critique capable of challenging the notion of technological determinism. We can control technology and its environmental and social impact. More significantly, we can control the controllers and redirect technology in such a way that adverse environmental impact is substantially reduced (if not entirely eliminated) and issues of freedom, equality, and justice are kept in the forefront of discussion during the **establishment of policy**.

#### Permutation do both.

#### Plan necessary to understand reject the harms of the bad side of nuclear technology by recognizing and ending the violence on the fourth world.

Kato, Professor of Political Science at the University of Hawaii, 1993

(Masahide "Nuclear Globalism: Traversing Rockets, Satellites, and Nuclear War via the Strategic Gaze," Alternatives: Global, Local, Political. Pages 352-354, MAG)

Beyond this historical threshold, whose meaning is relevant only to the interimperial rivalry, the nuclear catastrophe is confined to the realm of fantasy, for instance, apocalyptic imagery. And yet how can one deny the crude fact that nuclear war has been taking place on this earth in the name of "nuclear testing" since the first nuclear explosion at Alamogordo in 1945? As of 1991, 1,924 nuclear explosions have occurred on earth.28 The major perpetrators of nuclear warfare are the United States (936 times), the former Soviet Union (715 times), France (192 times), the United Kingdom (44 times), and China (36 times).29 The primary targets of warfare ("test site" to use Nuke Speak terminology) have been invariably the sovereign nations of Fourth World and Indigenous Peoples. Thus history has already witnessed the nuclear wars against the Marshall Islands (66 times), French Polynesia (175 times), Australian Aborigines (9 times), Newe Sogobia (the Western Shoshone Nation) (814 times), the Christmas Islands (24 times), Hawaii (Kalama Island, also known as Johnston Island) (12 times), the Republic of Kazakhstan (467 times), and Uighur (Xinjian Province, China) (36 times).30 Moreover, although I focus primarily on "nuclear tests" in this article, if we are to expand the notion of nuclear warfare to include any kind of violence accrued from the nuclear fuel cycle (particularly uranium mining and disposition of nuclear wastes), we must enlist Japan and the European nations as perpetrators and add the Navaho, Havasupai and other Indigenous Nations to the list of targets.

#### Plan solves waste and mining. That’s 1AC solvency evidence.

#### Excluding environmentally securitizing discourse cedes its rhetorical power to militant elites, framing the environment as a security issues allows effective response and a formation of a non-militaristic concept of “security”

Liftin, prof of political science at Univ. of Washington, 98

(Karen T., “Constructing Environmental Security and Ecological Interdependence”, Global Governance 5 (1998)) NG

It may be tempting to jettison environmental security, but there are strong practical and epistemological reasons for not doing so. First, the two principal trends that have thrown the field of security studies into tumult-the declining utility of force and the growing salience of nonstate actors-are likely to persist. Alternative formulations of security will therefore continue to demand a hearing. Second, climate change, land degradation and desertification, the largest wave of species extinctions since the dinosaurs, and multifarious pollutants are real and growing sources of insecurity. Third, limiting security language to military threats cedes too much ground to the security traditionalists. If security is a discursive practice, then it can be constructed by a mulitiplicity of social actors. Security discourse can be rehabilitated to encompass environmental dangers, however, only if certain caveats are prudently observed. These have mostly to do with the twin dangers of bolstering a traditional state-centric threat-defense conception of security, and falling into an objectivism that ignores the socially constructed element of all security concerns. To claim that environmental problems are social constructions is not to deny their physical character; to believe otherwise would be ecologically and politically irresponsible. One of the pitfalls of security language is the presumption that security signifies some reality with a concrete external referent. As Ole Wrever argues, rather than being a sign for an objective referent, security is most aptly understood as a speech act: "The utterance itself is the act."19 Although his critique could provide the basis for a more reflective conception of security as a socially constructed set of concerns, Waever opposes an expanded notion of security, including the "securitization of the environment," on the grounds that "security is articulated only from aspecific prace, in an institutional voice, by elites."20 In other words, only those concerned with classic state-centric threat-defense dynamics are entitled to perform security speech acts. This reading not only ignores the fact that security speech acts are performed on a daily basis by an increasingly diffuse group of scholars and practitioners, but it also abdicates too much terrain to the security traditionalists. The state is not the sole subject of security, nor is coercive power the sole means of seeking it. If Cold War hawks could seize on the ambiguous symbol of national security, then contemporary analysts may also deploy the ambiguous symbol of environmental security. But to do so reflectively, without falling prey to the sorts of ideological excess that characterized Cold War security discourse, they must be conscious of how they construct their speech acts.

#### State focused nuclear power solutions are good

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

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

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

#### Our tech optimism based on empirical research is good---prefer specific experts.

Krier, Professor of Law at the University of Michigan, ‘85

[James, “The Un-Easy Case for Technological Optimism,” Michigan Law Review, Vol. 84, No. 3; December 1985, pp. 405-429]

A technological optimist is not simply a person with unqualified enthusiasm about technological promise. Saint-Simon (1760-1825) was an enthusiast, but he was not a technological optimist as the term is currently used. Saint-Simon, rather, was a utopian who happened to attach his vision to technocratic expertise.4 He was the forefather of Technocracy, an active utopian movement in the 1930s and one not entirely dead even today.5 Technological optimists are not utopians, but something less - let us say quasi-utopians, after a recent usage (applied to himself) of Robert Dahl's.6 Unlike any self-respecting pure utopian, quasi-utopians (and technological optimists) seek not perfection but tolerable imperfection, § Marked 20:32 § tolerable because it is better than anything else they consider attainable though not nearly as good as lots of alternatives that can be imagined. But technological optimists are also something more than mere believers, or faddists, or techniks.7 Their views are rigorously formulated, grounded in an apparent reality, based on knowledge and experience, and artfully defended. There are no crazies among the best of the optimists; they are conservative, respected experts who command enormous authority. They have a very specific position namely, "that exponential technological growth will allow us to expand resources ahead of exponentially increasing demands."8 This is the precise meaning of technological optimism as a term of art.