## \*\*\* 1AC

### 1AC—Warming Adv

#### Contention One – The Environment

#### Nuclear power solves warming.

#### It offers significant advantages over all alternative options.

Cohen 12 (Armond, Co-founder and Executive Director of the Clean Air Task Force, Actively involved in CATF projects focusing on Arctic stabilization, low carbon technology innovation and coal transition, Armond led the Conservation Law Foundation's Energy Project starting in 1983, Graduate of Brown University and Harvard Law School, Served as judicial clerk for the late Harlington Wood, Jr. of the United States Court of Appeals for the Seventh Circuit 1982-1983, Published numerous articles on climate, energy, and air pollution, and speaks and testifies frequently on these topics, Member of the Keystone Energy Board and US EPA's Clean Air Act Advisory Committee, *Decarbonization: The Nuclear Option*, February 13th, http://energy.nationaljournal.com/2012/02/is-america-poised-for-nuclear.php)

Three years ago, MIT’s Richard Lester published a simple analysis of what would be required to meet President Obama’s 83%-by-2050 greenhouse gas emission reduction target. The results were stark: Even if energy efficiency were to improve at rates 50% better than historical averages, and biofuels were able to meaningfully reduce transportation emissions in the near term (a proposition with which we disagree), meeting Obama’s goal would require retrofitting every existing coal plant in the country with carbon capture and sequestration (CCS), building twice again that much fossil capacity with CCS, building close to 3,000 wind farms the size of Massachusetts’ Cape Wind, and building nearly 4,000 solar farms the size of California’s Ivanpah. And, having done all that, increasing the amount of nuclear power we generate by a factor of five. Just on its face, this is a tall order. The capital investment is jaw-dropping, and it is becoming increasingly difficult to site new energy projects, regardless of whether they are solar or wind farms, transmission lines, CCS infrastructure, shale gas drilling, or nuclear facilities. More subtly, integrating these various energy sources—especially balancing output of intermittent renewables in an electric grid with no significant ability to store energy—is a major challenge; it is far from certain it can even be done at very large scale. To maximize our odds of meeting the target, we will need to prioritize development and deployment of technologies that appear capable of growing economically to full scale. Cheap unscrubbed natural gas is a “McSolution” to the problem—tempting, but probably not the healthiest long-term choice. In order to make a major contribution to climate abatement, methane emissions from natural gas production and distribution will need to be reduced, and gas-fired power plants will need to use CCS technologies. And, although gas in the United States today is sold at prices below production costs, that cannot continue for long, especially in increasingly international markets. Similarly, “soft energy paths” like PV power (also sometimes today sold below cost) will need significant grid support and zero-carbon balancing to generate meaningful emission reductions. The economic supply curve for large, attractive sites for these projects is bound to bend sharply upwards over time as well. In this context, nuclear power has potentially significant advantages to offer: It is demonstrably low-carbon; it provides baseload energy; unlike wind and solar, it has high power density; and, although gas is cheap today, the price of new nuclear power appears to approach that of new coal. Perhaps more importantly, the price of new nuclear plants will decline as years pass. Standardization will lead to some cost reductions; factory assembly of small, modular units could bring about further step-change reductions (as it has for automobiles and airplanes) in production costs. None of this means that nuclear is poised for a renaissance in the United States. Utilities and their regulators won’t argue with $3 gas, Congress is unwilling to put a price on carbon, and some people remain vehemently opposed to nuclear energy. Ultimately, however, nuclear energy is probably an indispensible element of any credible plan to substantially decarbonize the country. The Nuclear Regulatory Commission’s recent approval of the new Westinghouse reactor design is good news in this regard, as it should help revitalize the American nuclear industry and keep it moving on a path of continuous improvement. In the longer term, a host of newer technologies, including passively cooled small reactors, gas-cooled reactors, and reactors with liquid fuels offer significant potential for further improvements in cost and safety. The country would do well to support continued development and deployment of these designs. In an ideal world, we might wait to scale up nuclear power until after we’ve exhausted all efficiency and renewables options. Unfortunately, however, we don’t have decades to do this, even if we thought traditional green sources would eventually fill the zero-carbon void, which seems unrealistic. Half of the CO2 emitted today will still be warming the planet 1,000 years from now, and these legacy emissions won’t erase themselves. We need to develop all low-carbon energy options now to hedge against the risk of serious climate consequences; nuclear power, despite its genuine challenges, cannot be left off the table.

#### SMRs are the only solution that addresses the magnitude of warming before it’s too late.

**Palley 11 (**Reese Palley, The London School of Economics, 2011, The Answer: Why Only Inherently Safe, Mini Nuclear Power Plans Can Save Our World, p. 186-90)

The central investigation of this book has been directed at the scale of the nuclear industry. The book has argued that all anthropogenic challenges that put in question continued human existence on Earth are a matter of scale. It was nature’s unanticipated success with her human experiment, the evolutionary choice of brains over brawn, setting in motion the underlying scale problems that opened our Pandora’s box of calamities. The history of man on Earth can best be viewed as a race between population and resources in which, for some millennia, population expansion leads and the Earth’s resources have been straining to catch up. When population bloomed from 100 million brainy humans to a billion, the problems of scale emerged as the price we had to pay for success as a species. The conversion of forests to agriculture, responding to the need to feed a burgeoning population, initiated the emerging problem of scale. The elimination of oxygen-emitting forests was mitigated to a large measure in the beginning of our population growth by the slow rate of change of the deforestation, which allowed an absorbable increase of CO2 in the atmosphere. Natural processes, such as the ability of the oceans to take up CO2, tamped down global warming. But as the scale of the release of warming gases exploded a few hundred years ago, our remaining forests and our seas, our first line of defense against CO2 imbalance, could not cope and the level of CO2 has risen alarmingly each year since 1800. When human population climbed from a billion to six billion and these six billion reveled in the enormous energy content of coal, the scenario for disaster on a global scale came into play. The impact of the loss of forest paled in comparison to the havoc that the use of fossil fuels represented. In a world that was hungry for energy and, not incidentally, living on a Malthusian edge of food supply, coal burst upon us as manna from heaven. Coal was everywhere, easy to mine, and in enormous, almost unending supply It generated the cheap heat needed to run the engines of early industrialization. An unintended Faustian bargain was struck. The immediate cost of coal in the cities, dirt and pollution, were not out of sync with what urban man had lived with for centuries. It was beyond the science and the understanding of the time that burning vast millennial coal deposits would do little more than discommode the proximate few and benefit many. Again it was not the burning, it was the scale of the burning that dumped billions of tons of CO2 into the atmosphere. We are now presented with a horrendous invoice that must be paid if we are to survive in anywhere near the comfort to which we have become accustomed. It has been the intent of this book to argue that the scale of the warming catastrophe must be viewed primarily in terms of the continuing flow of CO2 into the atmosphere. Every possible source of CO2, no matter how small, must be identified and interdicted, since every fourth molecule of the gas will remain with us as a climate moderator for thousands of years. What we find is that all of the sources of energy including so-called green energy are CO2-culpable and that each, in spite of claims to the contrary, adds its tiny mite or enormous mass to the climate changes looming in man’s future. The book argues that the scale of the consumption of fossil fuels is clearly unsustainable and, more to the point, that the feeble attempts to restrict CO2 production are little more than a glossing over of the problem. Capping but not ending production of greenhouse gases only magnifies the unthinkable future costs of bringing the level of CO2 and other greenhouse gases back into balance. Logic dictates that merely limiting greenhouse gases pushes possible solutions farther and farther into the future and does little to mitigate the difficulties that will arise in the near future. Logic dictates that our reasonably comfortable survival depends on the immediate and total cessation of increases to parts per million of CO2 in the air. Logic dictates that if we are to continue to enjoy the level of comfort, wealth, and ease afforded us since the beginning of the twentieth century we must not only halt the increase but commence the actual decrease of warming gases at work in the atmosphere. That conclusion brings the book to the problems and the solutions inherent in nuclear power, the only energy source that can guarantee us a reasonable future that might be resistant to CO2 warming. Here the argument returns once again to the problem of scale of nuclear reactors, especially as the size of these reactors is related to the brief time left to us to get a grip on calamitous climate changes. The beginnings of nuclear energy lay in the demands of war. The battle between good and evil characterized by the Second World War gave hurried birth to a discovery that had the inherent power to both destroy and salvage. The power to destroy required plutonium on an enormous scale, which was projected forward into the postwar development of civilian reactors. The demand for scarce plutonium for the bombs of the cold war defined the type of reactors that were being developed. These were the breeder reactors, which spewed out plutonium measured in tons that had previously been available only in ounces, and would continue to do so when the wartime need was far behind us. What was once precious, rare, and desirable has become dangerous nuclear waste, and the imperfectly perceived scale of the waste problem has seriously inhibited the logical growth and development of nuclear power. By some unthinkable universal coincidence, nuclear power became available to man for war at the same time that it could prove to be the solution to man’s greatest peacetime challenge. But the gigawatt nuclear power plants that emerged from the war had within them the seeds of their own severe limitation. The scale of the risks, real and imagined, grew exponentially as the scale of energy output grew only linearly. These risks, some merely perceived, some dangerously real and some financial, have conspired to restrict the enormous expansion of nuclear power that is needed to quickly replace our present consumption of energy from fossil fuels. The present rate of replacement of fossil with nuclear sources is at a pace that will have little impact on ultimately dealing with the CO2 imbalance. This slow rate of change is compounded of public fears, bureaucratic regulatory mechanisms resistant to novel solutions, and a private capital market that is unable to conjure with the imagined and real risks of the huge gigawatt reactors that dominate the industry. It is a Gordian knot that cannot be unraveled but which can only be cut by a political sword that, alas, still lacks the edge to do the job. By another rare act of cosmic fortuity, there is a parallel existing nuclear technology that, barring political interference, is capable of addressing the scale problems inherent in gigawatt reactors. From the beginning of the nuclear era, researchers such as Weinberg and Wigner and Teller developed small, inherently safe nuclear reactors that did not breed plutonium. This was reason enough for the military, balancing urgent demands on research and development budgets, to consign the concept of “smaller and safer is better” to dusty shelves in our national science attic. This book has argued that small reactors, that produce a tenth of the energy of the giants also generate inordinately less of the risk that inhibits growth of the industry. Construction of small reactors is a fraction of the cost of construction of gigawatt reactors. Thus the number of years that scarce capital is tied up and at risk is substantially reduced. The book argues that a 100 MWe reactor88 is a much bigger hardware bargain than a gigawatt reactor, which, from start to output, can cost $15 billion. It is not only the hardware costs that contribute to the devilish details of risk. The problem is the inability of the market to accurately or even approximately estimate the real cost of the capital that would be tied up for over a decade in a project that, through technological advancements, could be obsolete before it ever joins the grid.

#### All alternatives to SMRs are insufficient in scope—plus safety concerns are all hype.

Nordhaus 12 (Michael Shellenberger, Jessica Lovering, Founder of the Breakthrough Institute, graduate of Earlham College and holds a masters degree in cultural anthropology from the University of California, Santa Cruz, "New Nukes: Why We Need Radical Innovation to Make New Nuclear Energy Cheap", September 11, http://thebreakthrough.org/index.php/programs/energy-and-climate/new-nukes/)

Arguably, the biggest impact of Fukushima on the nuclear debate, ironically, has been to force a growing number of pro-nuclear environmentalists out of the closet, including us. The reaction to the accident by anti-nuclear campaigners and many Western publics put a fine point on the gross misperception of risk that informs so much anti-nuclear fear. Nuclear remains the only proven technology capable of reliably generating zero-carbon energy at a scale that can have any impact on global warming. Climate change -- and, for that matter, the enormous present-day health risks associated with burning coal, oil, and gas -- simply dwarf any legitimate risk associated with the operation of nuclear power plants. About 100,000 people die every year due to exposure to air pollutants from the burning of coal. By contrast, about 4,000 people have died from nuclear energy -- ever -- almost entirely due to Chernobyl. But rather than simply lecturing our fellow environmentalists about their misplaced priorities, and how profoundly inadequate present-day renewables are as substitutes for fossil energy, we would do better to take seriously the real obstacles standing in the way of a serious nuclear renaissance. Many of these obstacles have nothing to do with the fear-mongering of the anti-nuclear movement or, for that matter, the regulatory hurdles imposed by the U.S. Nuclear Regulatory Commission and similar agencies around the world. As long as nuclear technology is characterized by enormous upfront capital costs, it is likely to remain just a hedge against overdependence on lower-cost coal and gas, not the wholesale replacement it needs to be to make a serious dent in climate change. Developing countries need large plants capable of bringing large amounts of new power to their fast-growing economies. But they also need power to be cheap. So long as coal remains the cheapest source of electricity in the developing world, it is likely to remain king. The most worrying threat to the future of nuclear isn't the political fallout from Fukushima -- it's economic reality. Even as new nuclear plants are built in the developing world, old plants are being retired in the developed world. For example, Germany's plan to phase-out nuclear simply relies on allowing existing plants to be shut down when they reach the ends of their lifetime. Given the size and cost of new conventional plants today, those plants are unlikely to be replaced with new ones. As such, the combined political and economic constraints associated with current nuclear energy technologies mean that nuclear energy's share of global energy generation is unlikely to grow in the coming decades, as global energy demand is likely to increase faster than new plants can be deployed. To move the needle on nuclear energy to the point that it might actually be capable of displacing fossil fuels, we'll need new nuclear technologies that are cheaper and smaller. Today, there are a range of nascent, smaller nuclear power plant designs, some of them modifications of the current light-water reactor technologies used on submarines, and others, like thorium fuel and fast breeder reactors, which are based on entirely different nuclear fission technologies. Smaller, modular reactors can be built much faster and cheaper than traditional large-scale nuclear power plants. Next-generation nuclear reactors are designed to be incapable of melting down, produce drastically less radioactive waste, make it very difficult or impossible to produce weapons grade material, use less water, and require less maintenance. Most of these designs still face substantial technical hurdles before they will be ready for commercial demonstration. That means a great deal of research and innovation will be necessary to make these next generation plants viable and capable of displacing coal and gas. The United States could be a leader on developing these technologies, but unfortunately U.S. nuclear policy remains mostly stuck in the past. Rather than creating new solutions, efforts to restart the U.S. nuclear industry have mostly focused on encouraging utilities to build the next generation of large, light-water reactors with loan guarantees and various other subsidies and regulatory fixes. With a few exceptions, this is largely true elsewhere around the world as well. Nuclear has enjoyed bipartisan support in Congress for more than 60 years, but the enthusiasm is running out. The Obama administration deserves credit for authorizing funding for two small modular reactors, which will be built at the Savannah River site in South Carolina. But a much more sweeping reform of U.S. nuclear energy policy is required. At present, the Nuclear Regulatory Commission has little institutional knowledge of anything other than light-water reactors and virtually no capability to review or regulate alternative designs. This affects nuclear innovation in other countries as well, since the NRC remains, despite its many critics, the global gold standard for thorough regulation of nuclear energy. Most other countries follow the NRC's lead when it comes to establishing new technical and operational standards for the design, construction, and operation of nuclear plants. What's needed now is a new national commitment to the development, testing, demonstration, and early stage commercialization of a broad range of new nuclear technologies -- from much smaller light-water reactors to next generation ones -- in search of a few designs that can be mass produced and deployed at a significantly lower cost than current designs. This will require both greater public support for nuclear innovation and an entirely different regulatory framework to review and approve new commercial designs. In the meantime, developing countries will continue to build traditional, large nuclear power plants. But time is of the essence. With the lion's share of future carbon emissions coming from those emerging economic powerhouses, the need to develop smaller and cheaper designs that can scale faster is all the more important. A true nuclear renaissance can't happen overnight. And it won't happen so long as large and expensive light-water reactors remain our only option. But in the end, **there is no credible path to mitigating climate change without a massive global expansion of nuclear energy**. If you care about climate change, nothing is more important than developing the nuclear technologies we will need to get that job done.

#### Warming is real, anthropogenic, and reversible if we start mitigation now.

Nuccitelli 11 (Dana Nuccitelli is an environmental scientist at a private environmental consulting firm in the Sacramento, California area. He has a Bachelor's Degree in astrophysics from the University of California at Berkeley, and a Master's Degree in physics from the University of California at Davis. He has been researching climate science, economics, and solutions as a hobby since 2006, and has contributed to Skeptical Science since September, 2010., Updated 2011, Originally Posted 9/24/2010, “The Big Picture”, http://www.skepticalscience.com/big-picture.html)

The Earth is Warming We know the planet is warming from surface temperature stations and satellites measuring the temperature of the Earth's surface and lower atmosphere. We also have various tools which have measured the warming of the Earth's oceans. Satellites have measured an energy imbalance at the top of the Earth's atmosphere. Glaciers, sea ice, and ice sheets are all receding. Sea levels are rising. Spring is arriving sooner each year. There's simply no doubt - the planet is warming (Figure 1). Global Warming Continues And yes, the warming is continuing. The 2000s were hotter than the 1990s, which were hotter than the 1980s, which were hotter than the 1970s. 2010 tied for the hottest year on record. The 12-month running average global temperature broke the record three times in 2010, according to NASA Goddard Institute for Space Studies (GISS) data. Sea levels are still rising, ice is still receding, spring is still coming earlier, there's still a planetary energy imbalance, etc. etc. Contrary to what some would like us to believe, the planet has not magically stopped warming. Those who argue otherwise are confusing short-term noise with long-term global warming (Figure 2). Foster and Rahmstorf (2011) showed that when we filter out the short-term effects of the sun, volcanoes, and El Niño cycles, the underlying man-made global warming trend becomes even more clear (Figure 3). For as much as atmospheric temperatures are rising, the amount of energy being absorbed by the planet is even more striking when one looks into the deep oceans and the change in the global heat content (Figure 4). Humans are Increasing Atmospheric Greenhouse Gases The amount of greenhouse gases in the atmosphere - particularly carbon dioxide (CO2) - has been rising steadily over the past 150 years. There are a number of lines of evidence which clearly demonstrate that this increase is due to human activities, primarily burning fossil fuels. The most direct of evidence involves simple accounting. Humans are currently emitting approximately 30 billion tons of CO2 per year, and the amount in the atmosphere is increasing by about 15 billion tons per year. Our emissions have to go somewhere - half goes into the atmosphere, while the other half is absorbed by the oceans (which is causing another major problem - ocean acidification). We also know the atmospheric increase is from burning fossil fuels because of the isotopic signature of the carbon in the atmosphere. Carbon comes in three different isotopes, and plants have a preference for the lighter isotopes. So if the fraction of lighter carbon isotopes in the atmosphere is increasing, we know the increase is due to burning plants and fossil fuels, and that is what scientists observe. The fact that humans are responsible for the increase in atmospheric CO2 is settled science. The evidence is clear-cut. Human Greenhouse Gases are Causing Global Warming There is overwhelming evidence that humans are the dominant cause of the recent global warming, mainly due to our greenhouse gas emissions. Based on fundamental physics and math, we can quantify the amount of warming human activity is causing, and verify that we're responsible for essentially all of the global warming over the past 3 decades. The aforementioned Foster and Rahmstorf (2011) found a 0.16°C per decade warming trend since 1979 after filtering out the short-term noise. In fact we expect human greenhouse gas emissions to cause more warming than we've thus far seen, due to the thermal inertia of the oceans (the time it takes to heat them). Human aerosol emissions are also offsetting a significant amount of the warming by causing global dimming. Huber and Knutti (2011) found that human greenhouse gas emissions have caused 66% more global warming than has been observed since the 1950s, because the cooling effect of human aerosol emissions have offset about 44% of that warming. They found that overall, human effects are responsible for approximately 100% of the observed global warming over the past 60 years (Figure 5). There are also numerous 'fingerprints' which we would expect to see from an increased greenhouse effect (i.e. more warming at night, at higher latitudes, upper atmosphere cooling) that we have indeed observed (Figure 6). Climate models have projected the ensuing global warming to a high level of accuracy, verifying that we have a good understanding of the fundamental physics behind climate change. Sometimes people ask "what would it take to falsify the man-made global warming theory?". Well, basically it would require that our fundamental understanding of physics be wrong, because that's what the theory is based on. This fundamental physics has been scrutinized through scientific experiments for decades to centuries. The Warming will Continue We also know that if we continue to emit large amounts of greenhouse gases, the planet will continue to warm. We know that the climate sensitivity to a doubling of atmospheric CO2 from the pre-industrial level of 280 parts per million by volume (ppmv) to 560 ppmv (we're currently at 390 ppmv) will cause 2–4.5°C of warming. And we're headed for 560 ppmv in the mid-to-late 21st century if we continue business-as-usual emissions. The precise sensitivity of the climate to increasing CO2 is still fairly uncertain: 2–4.5°C is a fairly wide range of likely values. However, even if we're lucky and the climate sensitivity is just 2°C for doubled atmospheric CO2, if we continue on our current emissions path, we will commit ourselves to that amount of warming (2°C above pre-industrial levels) within the next 75 years. The Net Result will be Bad There will be some positive results of this continued warming. For example, an open Northwest Passage, enhanced growth for some plants and improved agriculture at high latitudes (though this will require use of more fertilizers), etc. However, the negatives will almost certainly outweigh the positives, by a long shot. We're talking decreased biodiversity, water shortages, increasing heat waves (both in frequency and intensity), decreased crop yields due to these impacts, damage to infrastructure, displacement of millions of people, etc. Arguments to the contrary are superficial One thing I've found in reading skeptic criticisms of climate science is that they're consistently superficial. For example, the criticisms of James Hansen's 1988 global warming projections never go beyond "he was wrong," when in reality it's important to evaluate what caused the discrepancy between his projections and actual climate changes, and what we can learn from this. And those who argue that "it's the Sun" fail to comprehend that we understand the major mechanisms by which the Sun influences the global climate, and that they cannot explain the current global warming trend. And those who argue "it's just a natural cycle" can never seem to identify exactly which natural cycle can explain the current warming, nor can they explain how our understanding of the fundamental climate physics is wrong. There are legitimate unresolved questions Much ado is made out of the expression "the science is settled." The science is settled in terms of knowing that the planet is warming rapidly, and that humans are the dominant cause. There are certainly unresolved issues. As noted above, there's a big difference between a 2°C and a 4.5°C warming for a doubling of atmospheric CO2, and it's an important question to resolve, because we need to know how fast the planet will warm in order to know how fast we need to reduce our greenhouse gas emissions. There are significant uncertainties in some feedbacks which play into this question. For example, will clouds act as a net positive feedback (by trapping more heat, causing more warming) or negative feedback (by reflecting more sunlight, causing a cooling effect) as the planet continues to warm? And exactly how much global warming is being offset by human aerosol emissions? These are the sorts of questions we should be debating, and the issues that most climate scientists are investigating. Unfortunately there is a there is a very vocal contingent of people determined to continue arguing the resolved questions for which the science has already been settled. And when climate scientists are forced to respond to the constant propagation of misinformation on these settled issues, it just detracts from our investigation of the legitimate, unresolved, important questions. Smart Risk Management Means Taking Action People are usually very conservative when it comes to risk management. Some of us buy fire insurance for our homes when the risk of a house fire is less than 1%, for example. When it comes to important objects like cars and homes, we would rather be safe than sorry. But there is arguably no more important object than the global climate. We rely on the climate for our basic requirements, like having enough accessible food and water. Prudent risk management in this case is clear. The scientific evidence discussed above shows indisputably that there is a risk that we are headed towards very harmful climate change. There are uncertainties as to how harmful the consequences will be, but uncertainty is not a valid reason for inaction. There's very high uncertainty whether I'll ever be in a car accident, but it would be foolish of me not to prepare for that possibility by purchasing auto insurance. Moreover, uncertainty cuts both ways, and it's just as likely that the consequences will be worse than we expect as it is that the consequences won't be very bad. We Can Solve the Problem The good news is that we have the tools we need to mitigate the risk posed by climate change. A number of plans have been put forth to achieve the necessary greenhouse gas emissions cuts (i.e. here and here and here). We already have all the technology we need. Opponents often argue that mitigating global warming will hurt the economy, but the opposite is true. Those who argue that reducing emissions will be too expensive ignore the costs of climate change - economic studies have consistently shown that mitigation is several times less costly than trying to adapt to climate change (Figure 7). This is why there is a consensus among economists with expertise in climate that we should put a price on carbon emissions (Figure 8). should US reduce emissions The Big Picture The big picture is that we know the planet is warming, humans are causing it, there is a substantial risk to continuing on our current path, but we don't know exactly how large the risk is. However, uncertainty regarding the magnitude of the risk is not an excuse to ignore it. We also know that if we continue on a business-as-usual path, the risk of catastrophic consequences is very high. In fact, the larger the uncertainty, the greater the potential for the exceptionally high risk scenario to become reality. We need to continue to decrease the uncertainty, but it's also critical to acknowledge what we know and what questions have been resolved, and that taking no action is not an option. The good news is that we know how to solve the problem, and that doing so will minimize the impact not only on the climate, but also on the economy. The bottom line is that from every perspective - scientific, risk management, economic, etc. - there is no reason not to immeditately take serious action to mitigate climate change, and failing to do so would be exceptionally foolish.

#### Reducing CO2 is key. We are reaching a tipping point.

**Hansen et al 10** – Director of NASA/Goddard Institute for Space Studies [Dr. James Hansen, Dr. Makiko Sato (Physicist @ NASA/Goddard Institute for Space Studies), Dr. Pushker Kharecha (Researcher of earch sciences and astrobiology @ NASA/Goddard Institute for Space Studies), Dr. David Beerling (Professor of Animal and Plant Sciences @ University of Sheffield), Dr. Robert Berner (Professor Geology and Geophysics @ Yale University), Valerie Masson-Delmotte (Lab. Des Sciences du Climat et l’Environnement/Institut Pierre Simon Laplace, CEA-CNRS-Universite de Versailles Saint-Quentin en Yvelines), Dr. Mark Pagani (Professor of paleoceanography and paleoclimatology @ Yale University), Dr. Maureen Raymo (Paleoclimatologist/marine geologist @ Boston University), Dr. Dana L. Royer (Professor of Earth and Environmental Sciences @ Wesleyan University) & Dr. James C. Zachos ( Professor of Earth & Planetary Sciences @ University of California – Santa Cruzo) “Target atmospheric CO2: Where should humanity aim?” Open Atmos. Sci. J. (2008), vol. 2, pp. 217-231

Realization that today’s climate is far out of equilibrium with current climate forcings raises the specter of ‘tipping points’, the concept that climate can reach a point where, without additional forcing, rapid changes proceed practically out of our control [2, 7, 63, 64]. Arctic sea ice and the West Antarctic Ice Sheet are examples of potential tipping points. Arctic sea ice loss is magnified by the positive feedback of increased absorption of sunlight as global warming initiates sea ice retreat [65]. West Antarctic ice loss can be accelerated by several feedbacks, once ice loss is substantial [39].

We define: (1) the tipping level, the global climate forcing that, if long maintained, gives rise to a specific consequence, and (2) the point of no return, a climate state beyond which the consequence is inevitable, even if climate forcings are reduced. A point of no return can be avoided, even if the tipping level is temporarily exceeded. Ocean and ice sheet inertia permit overshoot, provided the climate forcing is returned below the tipping level before initiating irreversible dynamic change.

Points of no return are inherently difficult to define, because the dynamical problems are nonlinear. Existing models are more lethargic than the real world for phenomena now unfolding, including changes of sea ice [65], ice streams [66], ice shelves [36], and expansion of the subtropics [67, 68].

The tipping level is easier to assess, because the paleoclimate quasi-equilibrium response to known climate forcing is relevant. The tipping level is a measure of the long-term climate forcing that humanity must aim to stay beneath to avoid large climate impacts. The tipping level does not define the magnitude or period of tolerable overshoot. However, if overshoot is in place for centuries, the thermal perturbation will so penetrate the ocean [10] that recovery without dramatic effects, such as ice sheet disintegration, becomes unlikely.

4.2. Target CO2

Combined, GHGs other than CO2 cause climate forcing comparable to that of CO2 [2, 6], but growth of non-CO2 GHGs is falling below IPCC [2] scenarios. Thus total GHG climate forcing change is now determined mainly by CO2 [69]. Coincidentally, CO2 forcing is similar to the net human-made forcing, because non-CO2 GHGs tend to offset negative aerosol forcing [2, 5].

Thus we take future CO2 change as approximating the net human-made forcing change, with two caveats. First, special effort to reduce non-CO2 GHGs could alleviate the CO2 requirement, allowing up to about +25 ppm CO2 for the same climate effect, while resurgent growth of nonCO2 GHGs could reduce allowed CO2 a similar amount [6]. Second, reduction of human-made aerosols, which have a net cooling effect, could force stricter GHG requirements. However, an emphasis on reducing black soot could largely off-set reductions of high albedo aerosols [20].

Our estimated history of CO2 through the Cenozoic Era provides a sobering perspective for assessing an appropriate target for future CO2 levels. A CO2 amount of order 450 ppm or larger, if long maintained, would push Earth toward the ice-free state. Although ocean and ice sheet inertia limit the rate of climate change, such a CO2 level likely would cause the passing of climate tipping points and initiate dynamic responses that could be out of humanity’s control.

#### Warming kills beer production

Beverage World 8 [“Scientist: Climate Change to Impact Beer Production”, 4-9, <http://www.beverageworld.com/content/view/34648/34/>]

The price of beer is likely to rise in coming decades because climate change will hamper the production of a key grain needed for the brew - especially in Australia, a scientist warned Tuesday. Jim Salinger, a climate scientist at New Zealand's National Institute of Water and Atmospheric Research, said climate change likely will cause a decline in the production of malting barley in parts of New Zealand and Australia. Malting barley is a key ingedient of beer. "It will mean either there will be pubs without beer or the cost of beer will go up," Salinger told the Institute of Brewing and Distilling convention. Similar effects could be expected worldwide, but Salinger spoke only of the effects on Australia and New Zealand. He said climate change could cause a drop in beer production within 30 years, especially in parts of Australia, as dry areas become drier and water shortages worsen.

#### Beer is awesome

Will 8 [George, Pulitzer Prize Winning Columnist, “No Beer, No Civilization”, 7-10, http://townhall.com/Columnists/GeorgeWill/2008/07/10/no\_beer,\_no\_civilization]

"Nonwhat"? Do not try to peddle that proposition in the bleachers or at the beaches in July. It is closer to the truth to say: No beer, no civilization. The development of civilization depended on urbanization, which depended on beer. To understand why, consult Steven Johnson's marvelous 2006 book "The Ghost Map: The Story of London's Most Terrifying Epidemic — and How It Changed Science, Cities, and the Modern World." It is a great scientific detective story about how a horrific cholera outbreak was traced to a particular neighborhood pump for drinking water. And Johnson begins a mind-opening excursion into a related topic this way: "The search for unpolluted drinking water is as old as civilization itself. As soon as there were mass human settlements, waterborne diseases like dysentery became a crucial population bottleneck. For much of human history, the solution to this chronic public-health issue was not purifying the water supply. The solution was to drink alcohol." Often the most pure fluid available was alcohol — in beer and, later, wine — which has antibacterial properties. Sure, alcohol has its hazards, but as Johnson breezily observes, "Dying of cirrhosis of the liver in your forties was better than dying of dysentery in your twenties." Besides, alcohol, although it is a poison, and an addictive one, became, especially in beer, a driver of a species-strengthening selection process. Johnson notes that historians interested in genetics believe that the roughly simultaneous emergence of urban living and the manufacturing of alcohol set the stage for a survival-of-the-fittest sorting-out among the people who abandoned the hunter-gatherer lifestyle and, literally and figuratively speaking, went to town. To avoid dangerous water, people had to drink large quantities of, say, beer. But to digest that beer, individuals needed a genetic advantage that not everyone had — what Johnson describes as the body's ability to respond to the intake of alcohol by increasing the production of particular enzymes called alcohol dehydrogenases. This ability is controlled by certain genes on chromosome four in human DNA, genes not evenly distributed to everyone. Those who lacked this trait could not, as the saying is, "hold their liquor." So, many died early and childless, either of alcohol's toxicity or from waterborne diseases. The gene pools of human settlements became progressively dominated by the survivors — by those genetically disposed to, well, drink beer. "Most of the world's population today," Johnson writes, "is made up of descendants of those early beer drinkers, and we have largely inherited their genetic tolerance for alcohol." Johnson suggests, not unreasonably, that this explains why certain of the world's population groups, such as Native Americans and Australian Aborigines, have had disproportionately high levels of alcoholism: These groups never endured the cruel culling of the genetically unfortunate that town dwellers endured. If so, the high alcoholism rates among Native Americans are not, or at least not entirely, ascribable to the humiliations and deprivations of the reservation system. Rather, the explanation is that not enough of their ancestors lived in towns. But that is a potential stew of racial or ethnic sensitivities that we need not stir in this correction of Investor's Business Daily. Suffice it to say that the good news is really good: Beer is a health food. And you do not need to buy it from those wan, unhealthy-looking people who, peering disapprovingly at you through rimless Trotsky-style spectacles, seem to run all the health food stores. So let there be no more loose talk — especially not now, with summer arriving — about beer not being essential. Benjamin Franklin was, as usual, on to something when he said, "Beer is living proof that God loves us and wants us to be happy." Or, less judgmentally, and for secular people who favor a wall of separation between church and tavern, beer is evidence that nature wants us to be.

#### But warming also causes extinction.

**Brandenberg 99** (John & Monica Paxson, Visiting Prof. Researcher @ Florida Space Institute, Physicist Ph.D., Science Writer, Dead Mars Dying Earth, Pg 232-233)

The ozone hole expands, driven by a monstrous synergy with global warming that puts more catalytic ice crystals into the stratosphere, but this affects the far north and south and not the major nations’ heartlands. The seas rise, the tropics roast but the media networks no longer cover it. The Amazon rainforest becomes the Amazon desert. Oxygen levels fall, but profits rise for those who can provide it in bottles. An equatorial high-pressure zone forms, forcing drought in central Africa and Brazil, the Nile dries up and the monsoons fail. Then inevitably, at some unlucky point in time, a major unexpected event occurs—a major volcanic eruption, a sudden and dramatic shift in ocean circulation or a large asteroid impact (those who think freakish accidents do not occur have paid little attention to life or Mars), or a nuclear war that starts between Pakistan and India and escalates to involve China and Russia . . . Suddenly the gradual climb in global temperatures goes on a mad excursion as the oceans warm and release large amounts of dissolved carbon dioxide from their lower depths into the atmosphere. Oxygen levels go down precipitously as oxygen replaces lost oceanic carbon dioxide. Asthma cases double and then double again. Now a third of the world fears breathing. As the oceans dump carbon dioxide, the greenhouse effect increases, which further warms the oceans, causing them to dump even more carbon. Because of the heat, plants die and burn in enormous fires, which release more carbon dioxide, and the oceans evaporate, adding more water vapor to the greenhouse. Soon, we are in what is termed a runaway greenhouse effect, as happened to Venus eons ago. The last two surviving scientists inevitably argue, one telling the other, “See! I told you the missing sink was in the ocean!” Earth, as we know it, dies. After this Venusian excursion in temperatures, the oxygen disappears into the soil, the oceans evaporate and are lost and the dead Earth loses its ozone layer completely. Earth is too far from the Sun for it to be the second Venus for long. Its atmosphere is slowly lost—as is its water—because of ultraviolet bombardment breaking up all the molecules apart from carbon dioxide. As the atmosphere becomes thin, the Earth becomes colder. For a short while temperatures are nearly normal, but the ultraviolet sears any life that tries to make a comeback. The carbon dioxide thins out to form a thin veneer with a few wispy clouds and dust devils. Earth becomes the second Mars—red, desolate, with perhaps a few hardy microbes surviving.

#### Death is the ultimate evil—it is a metaphysical lightning strike that obliterates what it is to be human in our present state—there is no possible warrant for their argument

Paterson 3 - Department of Philosophy, Providence College, Rhode Island (Craig, “A Life Not Worth

Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

Contrary to those accounts, I would argue that it is death per se that is really the objective evil for us, not because it deprives us of a prospective future of overall good judged better than the alternative of non-being. It cannot be about harm to a former person who has ceased to exist, for no person actually suffers from the sub-sequent non-participation. Rather, death in itself is an evil to us because it ontologically destroys the current existent subject — it is the ultimate in metaphysical lightening strikes. 80 The evil of death is truly an ontological evil borne by the person who already exists, independently of calculations about better or worse possible lives. Such an evil need not be consciously experienced in order to be an evil for the kind of being a human person is. Death is an evil because of the change in kind it brings about, a change that is destructive of the type of entity that we essentially are. Anything, whether caused naturally or caused by human intervention (intentional or unintentional) that drastically interferes in the process of maintaining the person in existence is an objective evil for the person. What is crucially at stake here, and is dialectically supportive of the self-evidency of the basic good of human life, is that death is a radical interference with the current life process of the kind of being that we are. In consequence, death itself can be credibly thought of as a ‘primitive evil’ for all persons, regardless of the extent to which they are currently or prospectively capable of participating in a full array of the goods of life. 81 In conclusion, concerning willed human actions, it is justifiable to state that any intentional rejection of human life itself cannot therefore be warranted since it is an expression of an ultimate disvalue for the subject, namely, the destruction of the present person; a radical ontological good that we cannot begin to weigh objectively against the travails of life in a rational manner. To deal with the sources of disvalue (pain, suffering, etc.) we should not seek to irrationally destroy the person, the very source and condition of all human possibility.

#### Yes value to life. Our status as beings inheres an affirmation of life in the face of extinction and nonbeing.

Bernstein 2 (Richard J., Vera List Prof. Phil. – New School for Social Research, “Radical Evil: A Philosophical Interrogation”, p. 188-192)

This is precisely what Jonas does in The Phenomenon of Life, his rethinking of the meaning of organic life. He tealizes that his philosophical project goes against many of the deeply embedded prejudices and dogmas of contemporary philosophy. He challenges two well-entrenched dogmas: that there is no metaphysical truth, and that there is no path from the "is" to the "ought". To escape from ethical nihilism, we must show that there is a metaphysical ground of ethics, an objective basis for valueand purpose in being itself. These are strong claims; and, needless to say, they are extremely controversial. In defense of Jonas, it should be said that he approaches this task with both boldness and intellectual modesty. He frequently acknowledges that he cannot "prove" his claims, but he certainly believes that his "premises" do "more justice to the total phenomenon of man and Being in general" than the prevailing dualist or reductionist alternatives. "But in the last analysis my argument can do no more than give a rational grounding to an option it presents as a choice for a thoughtful person — an option that of course has its own inner power of persuasion. Unfortunately I have nothing better to offer. Perhaps a future metaphysics will be able to do more." 8 To appreciate how Jonas's philosophical project unfolds, we need to examine his philosophical interpretation of life. This is the starting point of his grounding of a new imperative of responsibility. It also provides the context for his speculations concerning evil. In the foreword to The Phenomenon of Life, Jonas gives a succinct statement of his aim. Put at its briefest, this volume offers an "existential" interpretation of biological facts. Contemporary existentialism, obsessed with man alone, is in the habit of claiming as his unique privilege and predicament much of what is rooted in organic existence as such: in so doing, it withholds from the organic world the insights to be learned from the awareness of self. On its part, scientific biology, by its rules confined to the physical, outward facts, must ignore the dimension of inwardness that belongs to life: in so doing, it submerges the distinction of "animate" and "inanimate." A new reading of the biological record may recover the inner dimension — that which we know best -- for the understanding of things organic and so reclaim for psycho-physical unity of life that place in the theoretical scheme which it had lost through the divorce of the material and the mental since Descartes. p. ix) Jonas, in his existential interpretation of bios, pursues "this underlying theme of all of life in its developmentthrough the ascending order of organic powers and functions: metabolism, moving and desiring, sensing and perceiving, imagination, art, and mind — a progressive scale of freedom and peril, culminating in man, who may understand his uniqueness anew when he no longer sees himself in metaphysical isolation" (PL, p. ix). The way in which Jonas phrases this theme recalls the Aristotelian approach to bios, and it is clear that Aristotle is a major influence on Jonas. There is an even closer affinity with the philosophy of nature that Schelling sought to elaborate in the nineteenth century. Schelling (like many post- Kantian German thinkers) was troubled by the same fundamental dichotomy that underlies the problem for Jonas. The dichotomy that Kant introduced between the realm of "disenchanted" nature and the realm of freedom leads to untenable antinomies. Jonas differs from both Aristotle and Schelling in taking into account Darwin and contemporary scientific biology. A proper philosophical understanding of biology must always be compatible with the scientific facts. But at the same time, it must also root out misguided materialistic and reductionist interpretations of those biological facts. In this respect, Jonas's naturalism bears a strong affinity with the evolutionary naturalism of Peirce and Dewey. At the same time, Jonas is deeply skeptical of any theory of evolutionary biology that introduces mysterious "vital forces" or neglects the contingencies and perils of evolutionary development.' Jonas seeks to show "that it is in the dark stirrings of primeval organic substance that a principle of freedom shines forth for the first time within the vast necessity of the physical universe" (PL 3). Freedom, in this broad sense, is not identified exclusively with human freedom; it reaches down to the first glimmerings of organic life, and up to the type of freedom manifested by human beings. " 'Freedom' must denote an objectively discernible mode of being, i.e., a manner of executing existence, distinctive of the organic per se and thus shared by all members but by no nonmembers of the class: an ontologically descriptive term which can apply to mere physical evidence at first" (PL 3). This coming into being of freedom is not just a success story. "The privilege of freedom carries the burden of need and means precarious being" (PL 4). It is with biological metabolism that this principle of freedom first arises. Jonas goes "so far as to maintain that metabolism, the basic stratum of all organic existence, already displays freedom — indeed that it is the first form freedom takes." 1 ° With "metabolism — its power and its need — not-being made its appearance in the world as an alternative embodied in being itself; and thereby being itself first assumes an emphatic sense: intrinsically qualified by the threat of its negative it must affirm itself, and existence affirmed is existence as a concern" (PL 4). This broad, ontological understanding of freedom as a characteristic of all organic life serves Jonas as "an Ariadne's thread through the interpretation of Life" (PL 3). The way in which Jonas enlarges our understanding of freedom is indicative of his primary argumentative strategy. He expands and reinterprets categories that are normally applied exclusively to human beings so that we can see that they identify objectively discernible modes of being characteristic of everything animate. Even inwardness, and incipient forms of self; reach down to the simplest forms of organic life. 11 Now it may seem as if Jonas is guilty of anthropomorphism, of projecting what is distinctively human onto the entire domain of living beings. He is acutely aware of this sort of objection, but he argues that even the idea of anthropomorphism must be rethought. 12 We distort Jonas's philosophy of life if we think that he is projecting human characteristics onto the nonhuman animate world. Earlier I quoted the passage in which Jonas speaks of a "third way" — "one by which the dualistic rift can be avoided and yet enough of the dualistic insight saved to uphold the humanity of man" (GEN 234). We avoid the "dualistic rift" by showing that there is genuine continuity of organic life, and that such categories as freedom, inwardness, and selfhood apply to everything that is animate. These categories designate objective modes of being. But we preserve "enough dualistic insight" when we recognize that freedom, inwardness, and selfhood manifest themselves in human beings in a distinctive manner. I do not want to suggest that Jonas is successful in carrying out this ambitious program. He is aware of the tentativeness and fallibility of his claims, but he presents us with an understanding of animate beings such that we can discern both continuity and difference.' 3 It should now be clear that Jonas is not limiting himself to a regional philosophy of the organism or a new "existential" interpretation of biological facts. His goal is nothing less than to provide a new metaphysical understanding of being, a new ontology. And he is quite explicit about this. Our reflections [are] intended to show in what sense the problem of life, and with it that of the body, ought to stand in the center of ontology and, to some extent, also of epistemology. . . The central position of the problem of life means not only that it must be accorded a decisive voice in judging any given ontology but also that any treatment of itself must summon the whole of ontology. (PL 25) The philosophical divide between Levinas and Jonas appears to be enormous. For Levinas, as long as we restrict ourselves to the horizon of Being and to ontology (no matter how broadly these are conceived), there is no place for ethics, and no answer to ethical nihilism. For Jonas, by contrast, unless we can enlarge our understanding of ontology in such a manner as would provide an objective grounding for value and purpose within nature, there is no way to answer the challenge of ethical nihilism. But despite this initial appearance of extreme opposition, there is a way of interpreting Jonas and Levinas that lessens the gap between them. In Levinasian terminology, we can say that Jonas shows that there is a way of understanding ontology and the living body that does justice to the nonreducible alterity of the other (l'autrui). 14 Still, we might ask how Jonas's "existential" interpretation of biological facts and the new ontology he is proposing can provide a metaphysical grounding for a new ethics. Jonas criticizes the philosophical prejudice that there is no place in nature for values, purposes, and ends. Just as he maintains that freedom, inwardness, and selfhood are objective modes of being, so he argues that values and ends are objective modes of being. **There is a basic value inherent in organic being, a basic affirmation, "The Yes' of Life**" (IR 81). 15 "**The self-affirmation of being becomes emphatic in the opposition of life to death. Life is the explicit confrontation of being with not-being**. . . . The 'yes' of all striving is here sharpened by the active `no' to not-being" (IR 81-2). Furthermore — and this is the crucial point for Jonas — **this affirmation of life that is in all organic being has a binding obligatory force upon human beings**. This blindly self-enacting "yes" gains obligating force in the seeing freedom of man, who as the supreme outcome of nature's purposive labor is no longer its automatic executor but, with the power obtained from knowledge, can become its destroyer as well. He must adopt the "yes" into his will and impose the "no" to not-being on his power. But precisely this transition from willing to obligation is the critical point of moral theory at which attempts at laying a foundation for it come so easily to grief. Why does now, in man, that become a duty which hitherto "being" itself took care of through all individual willings? (IR 82). We discover here the transition from is to "ought" — from the self-affirmation of life to the binding obligation of human beings to preserve life not only for the present but also for the future. But why do we need a new ethics? The subtitle of The Imperative of Responsibility — In Search of an Ethics for the Technological Age — indicates why we need a new ethics.Modern technology has transformed the nature and consequences of human ac-tion so radically that the underlying premises of traditional ethics are no longer valid. For the first time in history human beings possess the knowledge and the power to destroy life on this planet, including human life. Not only is there the new possibility of total nuclear disaster; there are the even more invidious and threatening possibilities that result from the unconstrained use of technologies that can destroy the environment required for life. The major transformation brought about by modern technology is that the consequences of our actions frequently exceed by far anything we can envision. Jonas was one of the first philosophers to warn us about the unprecedented ethical and political problems that arise with the rapid development of biotechnology. He claimed that this was happening at a time when there was an "ethical vacuum," when there did not seem to be any effective ethical principles to limit ot guide our ethical decisions. In the name of scientific and technological "progress," there is a relentless pressure to adopt a stance where virtually anything is permissible, includ-ing transforming the genetic structure of human beings, as long as it is "freely chosen." We need, Jonas argued, a new categorical imperative that might be formulated as follows: "Act so that the effects of your action are compatible with the permanence of genuine human life"; or expressed negatively: "Act so that the effects of your action are not destructive of the future possibility of such a life"; or simply: "**Do not compromise the conditions for an indefinite continuation of humanity on earth**"; or again turned positive: "In your present choices, include the future wholeness of Man among the objects of your will." (IR 11)

#### The relationship towards death is, and must be, an individual determination—if a person perceives their interests as valuable, or that death will be a different state, then our obligation would be to prevent their death

Paterson 3 - Department of Philosophy, Providence College, Rhode Island (Craig, “A Life Not Worth

Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

In determining whether a life is worth living or not, attention should be focused upon an array of ‘interests’ of the person, and these, for the competent patient at least, are going to vary considerably, since they will be informed by the patient’s underlying dispositions, and, for the incompetent, by a minimal quality threshold. It follows that for competent patients, a broad-ranging assessment of quality of life concerns is the trump card as to whether or not life continues to be worthwhile. Different patients may well decide differently. That is the prerogative of the patient, for the only unpalatable alternative is to force a patient to stay alive. For Harris, life can be judged valuable or not when the person assessing his or her own life determines it to be so. If a person values his or her own life, then that life is valuable, precisely to the extent that he or she values it. Without any real capacity to value, there can be no value. As Harris states, ‘. . . the value of our lives is the value we give to our lives’. It follows that the primary injustice done to a person is to deprive the person of a life he or she may think valuable. Objectivity in the value of human life, for Harris, essentially becomes one of negative classification (ruling certain people out of consideration for value), allied positively to a broad range of ‘critical interests’; interests worthy of pursuing — friendships, family, life goals, etc. — which are subjected to de facto self-assessment for the further determination of meaningful value. Suicide, assisted suicide, and voluntary euthanasia, can therefore be justified, on the grounds that once the competent nature of the person making the decision has been established, the thoroughgoing commensuration between different values, in the form of interests or preferences, is essentially left up to the individual to determine for himself or herself.

#### Focus on survival is good because it gives future generations the opportunity to love, create, and experience joy

Morgan 9—Prof. Public Speaking and Current Affairs, December (Dennis, Hankuk U., Futures, “World on fire: two scenarios of the destruction of human civilization and possible extinction of the human race”, 41:10, ScienceDirect)

To be or not to be—that is indeed the ultimate question that humanity must answer. Will Shakespeare’s words continue to inspire generations to come, or will his works be completely lost and forgotten? The same question can be asked about all of the great works of art and expressions of the human spirit that have evolved through the ages. Will everything that is good and noble in human evolution, civilization, and culture be abandoned and completely lost or else completely forgotten by the ‘‘lucky’’ remnant that somehow manages to survive—if there are survivors? The ‘‘second death’’ is most tragic, for not only will our history be lost, but the future will be lost too. Will the yet-born never even be given the opportunity to receive the wisdom and beauty of the human spirit and experience what it means to be alive? How can we cheat them of this grand opportunity that should be theirs by right? Love will be lost**,** and our planet may very well become just as dead as every other planet that we know about in the universe. Who knows? Perhaps our planet is the only one in which the miracle of life managed to evolve. There is still so much more for us to discover about the universe and our own origins. We have not yet ‘‘come of age’’ as one race—the human race. We have yet to understand what it even means to be human, and before we do, are we to just let it slide through our hands and lose it all? Why??? For various psychological reasons, we have shielded ourselves in a state of denial concerning the price of our progress and the real nature and state of industrial civilization and its development. Perhaps we have shielded ourselves from the ugly side of our own human nature. How could we fail to see that we are standing on a precipice, at the very brink of falling headlong into an abyss of no return? We must not fall into this abyss blind and mute without a fight for life. We should look squarely at it and squarely at ourselves and ask ourselves Stephen Hawking’s question. Our species is about 100,000 years old. Civilization is only a fraction of that, yet long before the advent of human civilization, at a very threshold moment in human evolution, man discovered how to make and use fire. But do we really own it, or will we instead burn by the very fire we make? Do we really have as much control over it as we’d like to think we have**?** Knowing the ultimate cost, the risk of the complete destruction of human civilization and the possible extermination of our own species and perhaps all life**,** the future itself, how can we take such a risk? We live on a planet of finite resources with a finite atmosphere that miraculously supports life. Now, the development of industrial civilization has taken us to such a point that we have reached the endgame: we are standing on a precipice overlooking the abyss—from which there is no return. The 21st century is the most important and critical century because it is the century when humankind will determine whether we fall headlong into that abyss or whether we manage to gather real courage, wisdom and restraint to resist the temptation of such awful and ultimately self-destructive power. We must tear the scales from our eyes and view that power for what it is. This is the time that represents a moment of challenge for the ultimate survival of the species. If we fail, we will pay the ultimate price from which there will be no return. As long as our hearts still beat and we still breathe the air every day, then we are still alive, and that means that we still have a chance to make a difference and change the course that we’re on now. Let us not fall into the abyss headlong, blind and mute. Indeed, we must fight for life and for the yet-born generations of the future, and they will bear the fruit of our labor. They will look back proudly and say, ‘‘These are our true ancestors who cared enough about us to fight for our right to exist. Without them, we would not be able to love, to make music and gaze upon the stars at night. We would not be able to be filled with the wonder and joy of life and the beauty of nature. Without them, this Earth would have been an unlivable place like so many other planets, and we would not have come into existence. Thus, they have bequeathed to us this precious ethic - to care about the future and the yet-born future generations - to leave them a world that is at least as wonderful and joyous as the one we were born into.’’

#### We don’t know enough about death to choose it as an option—defer to the side of caution because our impact is extinction—if we’re wrong, we can always kill ourselves later. If they’re wrong, the world is gone forever

Paterson 3 - Department of Philosophy, Providence College, Rhode Island (Craig, “A Life Not Worth

Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

By engaging in such comparisons of future lives, the conclusion is reached by deprivation theorists that death is only an evil for the person if the future lost is one that offers better prospects for the person than death itself. Death itself is typically conceived of as the destruction of the self; the non-existence of the self; the non-state of non-being. How can we respond to this assessment that death can be said to benefit a patient when the patient’s future prospects in life seem so grim? The non-state that death brings in its wake is seen as being preferable to the continuance of life. Yet, are persons who make and act upon such calculations objectively justified in opting for death? Can it truly be a rational act for a person to choose the destruction of self over the continuation of self, even a self racked by the severe impositions of pain and suffering? 65 Philip Devine attempts to criticise the logicality of a decision to self-kill by stating what he considers to be the obscurity of what we can know about death. 66 He argues that if rational choice requires that a person knows what he or she is choosing (a leap in the dark not sufficing), then it cannot be rationally possible to intentionally choose death because of the ‘opaqueness of death’. 67 As Devine says, ‘. . . a precondition of rational choice is that one knows what one is choosing, either by experience or by the testimony of others who have experienced it or something very like it’. 68 Death cannot be rationally commensurated against, for we do not know what we are comparing life to. Life cannot simply be judged an overall evil and acted against by intentionally embracing death, for the ‘overall evil of life’ cannot be rationally traded in for the ‘opaqueness of death’. For Devine, choosing death is simply akin to leaping into the bowels of radical uncertainty that cannot function as a useful ground for objective rational choice.

#### And, their justifications can only possibly be post hoc, making emotional as opposed to rational decisions about the world

Paterson 3 - Department of Philosophy, Providence College, Rhode Island (Craig, “A Life Not Worth

Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

Again, if a life is judged not worth living, what is it about death that is supposed to be judged objectively commensurable to staying alive? How is it calculated? Perhaps intuition can attempt to supply an answer. However, a thoroughgoing appeal to intuition here simply negates the ability we have to use practical reason to inform our decision-making and guide our choices. But this will not do, for it is tantamount to saying that in the very situations where human reason is most crucially needed it is of no use to us! In reality, such a thoroughgoing appeal to intuition readily degenerates into a form of a posteriori rationalisation to justify choices already opted for on the basis of sub-rational emotion. 50 While use of language sometimes leads us to suspect that lives are often evaluated in terms of their overall worth, we should nevertheless be very suspicious of attempting to extrapolate from statements that (1) ‘doing X is a valuable part of A’s life and that A’s life is diminished by not being able to do X’, to (2) ‘A’s life is no longer worth living and it is therefore right to intentionally end it because A cannot do X’. Such inferences only seem plausible because there is a shift in the correct locus of evaluation, especially in the framework of medical decision-making, from the worthwhileness of certain treatments to the worthwhileness of certain lives.

### Solvency

#### Plan – The United States federal government should reduce restrictions external to a fast track process for small modular reactors.

#### Contention Two – Solvency

#### The plan solves the only major roadblock to the creation of a robust domestic SMR industry.

**Loris 11** (Nicolas D. Loris – Research Associate in the Roe Institute, Jack Spencer – Research Fellow in Nuclear Energy in the Thomas A. Roe Institute for Economic Policy Studies, Currently is The Heritage Foundation’s senior reesrach fellow in nuclear energy policy, Previously worked on commercial, civilian and military components of nuclear energy at the Babcock & Wilcox Companies, Holds a bachelor's degree in international politics from Frostburg State University and a master's degree from the University of Limerick, *A Big Future for Small Nuclear Reactors?*, February 2nd, http://www.heritage.org/research/reports/2011/02/a-big-future-for-small-nuclear-reactors)

Abstract: More and more companies—in the U.S. and abroad—are investing in new commercial nuclear enterprises, chief among them, small modular reactors (SMRs). The SMR industry is growing, with many promising developments in the works—which is precisely why the government should not interfere, as subsidies and government programs have already resulted in an inefficient system for large reactors. Heritage Foundation nuclear policy experts explain how the future for small reactors can remain bright.

Small modular reactors (SMRs) have garnered significant attention in recent years, with companies of all sizes investing in these smaller, safer, and **more cost-efficient** nuclear reactors. Utilities are even forming partnerships with reactor designers to prepare for potential future construction. Perhaps most impressive is that most of this development is occurring without government involvement. Private investors and entrepreneurs are **dedicating resources** to these technologies based on their future prospects, not on government set-asides, mandates, or subsidies, and despite the current regulatory bias in favor of large light water reactors (LWRs).

The result is a young, robust, innovative, and growing SMR industry. Multiple technologies are being proposed that each have their own set of characteristics based on price, fuel, waste characteristics, size, and any number of other variables. To continue this growth, policymakers should reject the temptation to offer the same sort of subsidies and government programs that have proven ineffective for large LWRs. While Department of Energy cost-sharing programs and capital subsidies seem attractive, they have yet to net any new reactor construction. Instead, policymakers should focus on the systemic issues that have continued to thwart the expansion of nuclear power in recent years. Specifically, the federal government needs to develop an efficient and **predictable regulatory pathway** to new reactor certification and to develop a sustainable nuclear waste management strategy.

Why SMRs?

Small modular reactors share many of the attractive qualities of large reactors, such as providing abundant emissions-free power, while adding new features that could make them more appropriate for certain applications, such as providing power to rural communities or for dedicated industrial use. SMRs are not yet positioned to take the place of traditional large LWRs, but they represent an important growth area for the commercial nuclear industry.

Indeed, should the promise of small modular reactors be realized, the technology could transform the nuclear industry. That is because these attributes would potentially mitigate some of the financial and regulatory problems that nuclear energy has recently faced. SMRs potentially cost less (at least in up-front capital), are more mobile and multifunctional, provide competition, and can largely be produced by existing domestic infrastructure.

Lower Costs Up Front. Large reactors are very expensive to license and construct and require massive up-front capital investments to begin a project. Small reactors, while providing far less power than large reactors, can be built in modules and thus be paid for over time. For example, estimates for larger reactors range from $6 billion to $10 billion and must be financed all at once. The Babcock & Wilcox Company’s modular mPower reactors, alternatively, can be purchased in increments of 125 megawatts (MW), which would allow costs to be spread out over time. Though cost estimates are not yet available for the mPower reactor, its designers have stated that they will be competitive. This should not be used as a reason to refrain from building larger, 1,000-plus MW reactors. Each utility will have its own set of variables that it must consider in choosing a reactor technology, but given that one of the primary justifications for government subsidies is that the high costs of large reactors puts unacceptable strain on utility balance sheets, an option that spreads capital outlays over time should be attractive.

Safe Installation in Diverse Locations. Some designs are small enough to produce power for as few as 20,000 homes. One such reactor, Hyperion Power’s HPM (Hyperion Power Module) offers 25 MW of electricity for an advertised cost of $50 million per unit. This makes the HPM a potential power solution for isolated communities or small cities.[1] The Alaskan town of Galena, for example, is planning to power its community with a small reactor designed by Toshiba, while Fairbanks is looking into a small plant constructed by Hyperion.[2] In addition, Western Troy Capital Resources has stated that it will form a private corporation to provide electric power from small reactors for remote locations in Canada.[3] Public utility officials in Grays Harbor, Washington, have spoken with the NuScale Power company about powering the community with eight small nuclear plants;[4] and Hyperion Power has reported a high level of interest in small nuclear reactor designs from islands around the world.[5]

Using a small nuclear reactor could cut electricity costs in isolated areas since there would be no need for expensive transmission lines to carry power to remote locations.[6] SMRs could also potentially be integrated into existing energy infrastructure. SMRs could be built into old coal plants, for instance. The reactors would replace the coal boilers and be hooked into the existing turbines and distribution lines. According to the Nuclear Regulatory Commission, these modifications could be completed safely since small reactors will likely be easier to control during times of malfunction.[7]

Multi-functionality. SMRs can be used in a variety of applications that have substantial power and heat requirements. The chemical and plastics industries and oil refineries all use massive amounts of natural gas to fuel their operations. Similarly, small reactors could produce the heat needed to extract oil from tar sands, which currently requires large amounts of natural gas. While affordable today, natural gas prices vary significantly over time, so the long-term predictable pricing that nuclear provides could be very attractive. SMRs may also provide a practical solution for desalination plants (which require large amounts of electricity) that can bring fresh water to parts of the world where such supplies are depleting.[8] Perhaps most important, is that SMRs have the potential to bring power and electricity to the 1.6 billion people in the world today that have no access to electricity, and to the 2.4 billion that rely on biomass, such as wood, agricultural residue, and dung for cooking and heating.[9]

Competition. While competition among large nuclear-reactor technologies currently exists, small reactors will add a new dimension to nuclear-reactor competition. Multiple small technology designs are set to emerge on the market. Not only will competition among small reactors create a robust market, it will also provide an additional incentive for large reactors to improve. If smaller reactors begin to capture a share of the nuclear market and the energy market at large, it will drive innovation and ultimately lower prices for both new and existing technologies.

Domestic Production. Although the nuclear industry necessarily shrank to coincide with decreased demand, much of the domestic infrastructure remains in place today and could support the expansion of small-reactor technologies. Although the industrial and intellectual base has declined over the past three decades, forging production, heavy manufacturing, specialized piping, mining, fuel services, and skilled labor could all be found in the United States. Lehigh Heavy Forge Corporation in Bethlehem, Pennsylvania, could build the forges while Babcock & Wilcox could provide the heavy nuclear components, for instance. AREVA/Northrop Grumman Shipbuilding broke ground on a heavy components manufacturing facility last June.[10] Further, a number of companies are expanding manufacturing, engineering, and uranium enrichment capabilities—all in the United States.

If SMRs are so great, where is the construction?

While some designs are closer to market introduction than others, the fact is that America’s **regulatory** and policy environment is not sufficient to support a robust expansion of existing nuclear technologies, much less new ones. New reactor designs are difficult to license efficiently, and the lack of a sustainable nuclear waste management policy causes significant risk to private investment.

Many politicians are attempting to mitigate these market challenges by offering subsidies, such as loan guarantees. While this approach still enjoys broad support in Congress and industry, the reality is that it has not worked. Despite a lavish suite of subsidies offered in the Energy Policy Act of 2005, including loan guarantees, insurance against government delays, and production tax credits, no new reactors have been permitted, much less constructed. These subsidies are in addition to existing technology development cost-sharing programs that have been in place for years and defer significant research and development costs from industry to the taxpayer.

The problem with this approach is that it ignores the larger systemic problems that create the unstable marketplace to begin with. These systemic problems generally fall into three categories:

Licensing. The Nuclear Regulatory Commission (NRC) is ill prepared to build the regulatory framework for new reactor technologies, and no reactor can be offered commercially without an NRC license. In a September 2009 interview, former NRC chairman Dale E. Klein said that small nuclear reactors pose a dilemma for the NRC because the commission is uneasy with new and unproven technologies and feels more comfortable with large light water reactors, which have been in operation for years and has a long safety record.[11] The result is that enthusiasm for building non-light-water SMRs is generally squashed at the NRC as potential customers realize that there is little chance that the NRC will permit the project within a timeframe that would promote near-term investment. So, regardless of which attributes an SMR might bring to the market, the **regulatory risk** is such that real progress on commercialization is difficult to attain. This then leaves large light water reactors, and to a lesser extent, small ones, as the least risky option, which pushes potential customers toward that technology, which then undermines long-term progress, competition, and innovation.

Nuclear Waste Management. The lack of a sustainable nuclear waste management solution is perhaps the greatest obstacle to a broad expansion of U.S. nuclear power. The federal government has failed to meet its obligations under the 1982 Nuclear Waste Policy Act, as amended, to begin collecting nuclear waste for disposal in Yucca Mountain. The Obama Administration’s attempts to shutter the existing program to put waste in Yucca Mountain without having a backup plan has worsened the situation. This outcome was predictable because the current program is based on the flawed premise that the federal government is the appropriate entity to manage nuclear waste. Under the current system, waste producers are able to largely ignore waste management because the federal government is responsible. The key to a sustainable waste management policy is to directly connect financial responsibility for waste management to waste production. This will increase demand for more waste-efficient reactor technologies and drive innovation on waste-management technologies, such as reprocessing. Because SMRs consume fuel and produce waste differently than LWRs, they could contribute greatly to an economically efficient and sustainable **nuclear waste management strategy**.

Government Intervention. Too many policymakers believe that Washington is equipped to guide the nuclear industry to success. So, instead of creating a stable regulatory environment where the market value of different nuclear technologies can determine their success and evolution, they choose to create programs to help industry succeed. Two recent Senate bills from the 111th Congress, the Nuclear Energy Research Initiative Improvement Act (S. 2052) and the Nuclear Power 2021 Act (S. 2812), are cases in point. Government intervention distorts the normal market processes that, if allowed to work, would yield the most efficient, cost-effective, and appropriate nuclear technologies. Instead, the federal government picks winners and losers through programs where bureaucrats and well-connected lobbyists decide which technologies are permitted, and provides capital subsidies that allow investors to ignore the systemic problems that drive risk and costs artificially high. This approach is especially detrimental to SMRs because subsidies to LWRs distort the relative benefit of other reactor designs by artificially lowering the cost and risk of a more mature technology that already dominates the marketplace.

How to Fix a Broken System

At the Global Nuclear Renaissance Summit on July 24, 2008, then-NRC chairman Dale Klein said that a nuclear renaissance with regard to small reactors will take “decades to unfold.”[12] If Members of Congress and government agencies do not reform their current approach to nuclear energy, this will most certainly be the case. However, a new, market-based approach could lead to a different outcome. Instead of relying on the policies of the past, Congress, the Department of Energy, and the NRC should pursue a new, 21st-century model for small and alternative reactor technologies by doing the following:

Reject additional loan guarantees. Loan guarantee proponents argue that high up-front costs of new large reactors make them unaffordable without loan guarantees. Presumably, then, a smaller, less expensive modular option would be very attractive to private investors even without government intervention. But loan guarantees undermine this advantage by subsidizing the capital costs and risk associated with large reactors. A small reactor industry without loan guarantees would also provide competition and downward price pressure on large light water reactors. At a minimum, Congress should limit guarantees to no more than two plants of any reactor design and limit to two-thirds the amount of any expanded loan guarantee program that can support a single technology. Such eligibility limits will prevent support from going only to a single basic technology, such as large light water reactors.[13]

Avoid subsidies. Subsidies do not work if the objective is a diverse and economically sustainable nuclear industry. Despite continued attempts to subsidize the nuclear industry into success, the evidence demonstrates that such efforts invariably fail. The nuclear industry’s success stories are rooted in the free market. Two examples include the efficiency and low costs of today’s existing plants, and the emergence of a private uranium enrichment industry. Government intervention is the problem, as illustrated by the government’s inability to meet its nuclear waste disposal obligations.

Build expertise at the Nuclear Regulatory Commission. The NRC is built to regulate large light water reactors. It simply does not have the regulatory capability and resources to efficiently regulate other technologies, and building that expertise takes time. Helping the NRC to develop that expertise now would help bring new technologies into the marketplace more smoothly. Congress should direct and resource the NRC to develop additional broad expertise for liquid metal-cooled, fast reactors and high-temperature, gas-cooled reactors. With its existing expertise in light water technology, this additional expertise would position the NRC to effectively regulate an emerging SMR industry.

Establish a new licensing pathway. The current licensing pathway relies on reactor customers to drive the regulatory process. But absent an efficient and predictable regulatory pathway, few customers will pursue these reactor technologies. The problem is that the legal, regulatory, and policy apparatus is built to support large light water reactors, effectively discriminating against other technologies. Establishing an alternative **licensing pathway** that takes the unique attributes of small reactors into consideration could help build the necessary regulatory support on which commercialization ultimately depends.[14]

Resolve staffing, security, construction criteria, and fee-structure issues by December 31, 2011. The similarity of U.S. reactors has meant that the NRC could establish a common fee structure and many general regulatory guidelines for areas, such as staffing levels, security requirements, and construction criteria. But these regulations are inappropriate for many SMR designs that often have smaller staff requirements, unique control room specifications, diverse security requirements, and that employ off-site construction techniques. Subjecting SMRs to regulations built for large light water reactors would add cost and result in less effective regulation. The NRC has acknowledged the need for this to be resolved and has committed to doing so, including developing the budget requirements to achieve it. It has not committed to a specific timeline.[15] Congress should demand that these issues be resolved by the end of 2011.

#### We have a moral obligation to advocate nuclear---any alternative results in extinction due to warming

**Baker 12**—Executive Director of PopAtomic Studios, the Nuclear Literacy Project (7/25/12, Suzy, Climate Change and Nuclear Energy: We Need to Talk, ansnuclearcafe.org/2012/07/25/climate-change-and-nuclear-energy-we-need-to-talk/)

Ocean Acidification¶ While I was making artistic monuments to single celled organisms in the ceramics studio, new research was emerging about ocean acidification affecting these beautiful and integral pieces of our ecosystem. As the ocean absorbs excess carbon from humans burning fossil fuels, the pH of the ocean is rapidly changing. This means that our ancient oxygen-making pals cannot properly do their job. As their ocean home becomes inhospitable, they are dying off in droves. This not only impacts the ocean’s ability to naturally sequester man made carbon emissions; it also negatively impacts the entire food chain, since they are the primary food source for other multi-cellular ocean creatures, some of which we enjoy eating.¶ Oh, and did I mention that these little phytoplankton are also responsible for creating the ozone layer that protects **all life on the planet** from cosmic radiation, and they churn out 70-80% of the oxygen we breathe? These creatures are much more than just a pretty floating form.¶ Ocean acidification is the issue that brought me to supporting nuclear energy. Ocean acidification is an often-overlooked aspect of climate change that is potentially more threatening than the heat, the super storms, the fires, the drought, the crop losses, and all of the other trends that we are seeing now, which climate scientists have been warning us about for decades.¶ Climate Change and Nuclear Energy: Like Oil and Water?¶ It didn’t take long for me to find out that in the nuclear industry, climate change is not something we all agree on. Discussing climate change as a concern is often polarizing, and brings up intrinsic conflicts of interest in the larger energy sector (the companies who design/build/run the nuclear plants also happen to design/build/run the fossil fuel plants). I’ve been advised by people who deeply care about me, and the success of my organization, not to bring up climate at all, and to be extremely careful not to base my support of nuclear on climate issues. I’ve also been specifically advised not to make the argument that nuclear energy is the only solution to climate change.¶ When you are the new kid, it is usually best not to make waves if you can help it. So, for the most part, I have heeded that advice and held my tongue, despite myself.¶ However, as I watch the news (and my wilting vegetable garden) and see the magnitude of human suffering that is directly related to increasingly severe weather events, I cannot keep silent. Climate change is why I am here supporting nuclear energy, so what am I doing not talking about it?¶ The CEO of Exxon Mobile recently made clear that despite his company’s acknowledgement of the irrefutable evidence of climate change, and the huge ecological and human cost, he has no intentions of slowing our fossil fuel consumption. In fact, he goes as far to say that getting fossil fuels to developing nations will save millions of lives. While I agree that we need stronger, better energy infrastructure for our world’s poorest nations, I wholly disagree that fossils are the right fit for the job.¶ Fossil fuel usage could be cast as a human rights issue only to the extent that access to reliable and affordable electricity determines what one’s standard of living is. At the same time, **fossil fuel usage is the single largest threat to our planet and every species on it**. **Disregarding the impacts that fossil fuel use poses**, merely to protect and increase financial profits, **is unethical**, and cloaking fossil fuel use as a human rights issue is immoral.¶ Although we are all entitled to our own opinions and beliefs, the idea that climate change and ocean acidification are even up for debate is not reasonable. Just think: The CEO of the largest fossil fuel company in America freely speaks out about climate change, while nuclear energy advocates are pressured to stay silent on the subject.¶ **Silence is No Longer an Option**¶ I am someone who avoids conflict, who seeks consensus in my personal and professional lives, and so I have followed the advice of well-meaning mentors and stayed silent in hopes of preserving a false peace within my pro-nuclear circles, including my family and friends. But my keeping silent is now over— starting here and starting now—**because this is too big and too important to stay silent.** I am not alone in believing this, and the nuclear industry does itself no favors by tacitly excluding the growing movement of people who are passionate about the need to use nuclear energy to address climate change.¶ And nuclear power is the only realistic solution. It would be great if there were also other viable solutions that could be easily and quickly embraced; **however, the numbers just don’t work out**. Renewables and conservation may have done more good if we had utilized them on a large scale 40 years ago, when we were warned that our ecosystem was showing signs of damage from fossils fuels…but at this point it’s really too late for them. And burning more fossil fuels right now, when we have the technologies and know-how to create a carbon-free energy economy, would be the height of foolishness.¶ In the meantime, there is real human suffering, and we here in the developed world are directly causing it. Our poorest brothers and sisters cannot escape the heat. They cannot import food when their crops fail. They cannot buy bottled water when there is a drought. They cannot “engineer a solution” any more than my childhood friends the phytoplankton can.¶ ¶ Energy Choices as an Ethical Obligation¶ **We have an ethical obligation to stop killing people with our energy consumption**. That statement may sound oversimplified, but let’s be honest—we know that fossil fuels kill approximately 1.3 million people each year through respiratory diseases and cancers, and the death toll for climate change related events rises every day. Yet, we do nothing but dither about climate change politics. Where is the outrage?¶ The fossil fuel industry has been successful at presenting a united front and maintaining consistent strategic communications. In contrast, the safety record and clean energy contributions of nuclear are always overshadowed by politics favoring fossil fuel use. If anything, nuclear advocates should be particularly sensitive that the very same politics are happening with climate science.¶ We should be championing nuclear energy as a science-based solution, instead of enforcing a meek code of silence. People from outside the nuclear industry, like Gwyneth Cravens, Barry Brooks and Tom Blees, have pointed out these relationships, yet the nuclear industry has yet to internalize and accept these realities.¶ How can we expect people to listen to science and not politics when it comes to nuclear energy, but not climate change?¶ Disagreeing with a policy does not change the facts. You can disagree with policy to limit carbon emissions, but that doesn’t change the fact that our fossil fuel consumption is changing the PH of our oceans. Many people disagree with the use of nuclear energy, but that doesn’t change the fact that nuclear is our largest source of carbon free electricity and the safest source of electricity per kilowatt hour.¶ Nuclear Must Lead by Example¶ If we want the public to overcome the cognitive dissonance between science and policy when it comes to nuclear energy, **we need to lead by example** and overcome our own cognitive dissonance when it comes to climate change — even if it means risking our own interests as members of the larger energy industry. We are not going to run out of fossil fuels any time soon, so the decision to move to carbon-free energy—to move to nuclear energy—must be made willingly, and based on ethical principles, not the limits of our natural resources.¶ As green groups wait endlessly for renewable technologies to have some kind of breakthrough, and nuclear supporters stay mum on climate change, we continue using fossil fuels. Our collective inaction is allowing the destruction of our planet’s ecosystem, the dying of our oceans, and the suffering of the poorest members of our own species. The climate conversation has become so convoluted by politics and greed that many smart, compassionate people have “thrown in the towel.” We should be more concerned than ever at our lack of a comprehensive global response.¶ I strongly believe that **there’s still time to reclaim the dialogue about climate change based on ocean acidification evidence, and to use nuclear technologies to improve the long-term outcome for our planet** and our species. The first step is acknowledging the complicated and unique role of the nuclear industry in this conflict, **and the conflicts of interest that are impeding open communication.** The second step is to realize that the climate change community is a potential ally, and that openly addressing the subject of climate change in our communications is in the best interest of the nuclear community. The third step is choosing to do the right thing, not just the polite thing, and reclaim our legitimate role in the energy community as the “top dog” of carbon-free electricity, instead of quietly watching natural gas become “the new coal.”¶ Climate change is not going away—it is getting worse—and **each one of us** in the nuclear community **has an ethical obligation to speak up and to do something about it**. I am speaking up for the oceans, for the cyano-bacteria and diatoms and our shared mitochondrial RNA that still fills me with wonder at the beauty of this world. Please join me if you can, to speak up for what you love—and if you cannot, please understand that we all remain nuclear advocates, and that the nuclear community is much stronger with the no-longer-silent climate change harbingers in it.

#### The state is inevitable and an indispensable part of the solution to warming

**Eckersley 4** Robyn, Reader/Associate Professor in the Department of Political Science at the University of Melbourne, “The Green State: Rethinking Democracy and Sovereignty”, MIT Press, 2004, Google Books, pp. 3-8

While acknowledging the basis for this antipathy toward the nation- state, and the limitations of state-centric analyses of global ecological degradation, I seek to draw attention to the positive role that states have played, and might increasingly play, in global and domestic politics. Writing more than twenty years ago, Hedley Bull (a proto-constructivist and leading writer in the English school) outlined the state's positive role in world affairs, and his arguments continue to provide a powerful challenge to those who somehow seek to "get beyond the state," as if such a move would provide a more lasting solution to the threat of armed conflict or nuclear war, social and economic injustice, or environmental degradation.10 As Bull argued, **given that the state is here to stay whether we like it or not**, then the call to get "beyond the state is a counsel of despair, at all events if it means that we have to begin by abolishing or subverting the state, rather than that there is a need to build upon it.""¶ In any event, rejecting the "statist frame" of world politics ought not prohibit an inquiry into the emancipatory potential of the **state as a crucial "node" in any future network of global ecological governance**. This is especially so, given that one can expect states to persist as major sites of social and political power for at least the foreseeable future and that **any green transformations of the present political order will, short of revolution, necessarily be state-dependent**. Thus, like it or not, those concerned about **ecological destruction must contend with existing institutions** and, where possible, seek to "rebuild the ship while still at sea." And if states are so implicated in ecological destruction, then an inquiry into the potential for their transformation even their modest reform into something that is at least more conducive to ecological sustainability would seem to be compelling.¶ Of course, it would be unhelpful to become singularly fixated on the redesign of the state at the expense of other institutions of governance. States are not the only institutions that limit, condition, shape, and direct political power, and it is necessary to keep in view the broader spectrum of formal and informal institutions of governance (e.g., local, national, regional, and international) that are implicated in global environmental change. Nonetheless, while the state constitutes only one modality of political power, it is an especially significant one because of its historical claims to exclusive rule over territory and peoples—as expressed in the principle of state sovereignty. As Gianfranco Poggi explains, the political power concentrated in the state "is a momentous, pervasive, critical phenomenon. **Together with other forms of social power, it constitutes an indispensable medium for constructing and shaping larger social realities**, for establishing, shaping and maintaining all broader and more durable collectivities."12 States play, in varying degrees, significant roles in structuring life chances, in distributing wealth, privilege, information, and risks, in upholding civil and political rights, and in securing private property rights and providing the legal/regulatory framework for capitalism**. Every one of these dimensions of state activity has, for good or ill, a significant bearing on the global environmental crisis**. Given that the green political project is one that demands far-reaching changes to both economies and societies, it is difficult to imagine how such changes might occur on the kind of scale that is needed **without the active support of states**. While it is often observed that states are too big to deal with local ecological problems and too small to deal with global ones, the state nonetheless holds, as Lennart Lundqvist puts it, "a unique position in the constitutive hierarchy from individuals through villages, regions and nations all the way to global organizations. The state is inclusive of lower political and administrative levels, and exclusive in speaking for its whole territory and population in relation to the outside world."13 In short, it seems to me inconceivable to advance ecological emancipation without also engaging with and seeking to transform state power.¶ Of course, not all states are democratic states, and the green movement has long been wary of the coercive powers that all states reputedly enjoy. Coercion (and not democracy) is also central to Max Weber's classic sociological understanding of the state as "a human community that (successfully) claims the monopoly of the legitimate use of physical force within a given territory."14 Weber believed that the state could not be defined sociologically in terms of its ends\* only formally as an organization in terms of the particular means that are peculiar to it.15 Moreover his concept of legitimacy was merely concerned with whether rules were accepted by subjects as valid (for whatever reason); he did not offer a normative theory as to the circumstances when particular rules ought to be accepted or whether beliefs about the validity of rules were justified. Legitimacy was a contingent fact, and in view of his understanding of politics as a struggle for power in the context of an increasingly disenchanted world, likely to become an increasingly unstable achievement.16¶ In contrast to Weber, my approach to the state is explicitly normative and explicitly concerned with the purpose of states, and the democratic basis of their legitimacy. It focuses on the limitations of liberal normative theories of the state (and associated ideals of a just constitutional arrangement), and it proposes instead an alternative green theory that seeks to redress the deficiencies in liberal theory. Nor is my account as bleak as Weber's. The fact that states possess a monopoly of control over the means of coercion is a most serious matter, but it does not necessarily imply that they must have frequent recourse to that power. In any event, whether the use of the state's coercive powers is to be deplored or welcomed turns on the purposes for which that power is exercised, the manner in which it is exercised, and whether it is managed in public, transparent, and accountable ways—a judgment that must be made against a background of changing problems, practices, and under- standings. The coercive arm of the state can be used to "bust" political demonstrations and invade privacy. **It can also be used to prevent human rights abuses, curb the excesses of corporate power, and protect the environment.**¶ In short, although the political autonomy of states is widely believed to be in decline, **there are still few social institution that can match the** same degree of capacity and potential legitimacy that **states have to redirect societies and economies along more ecologically sustainable lines to address ecological problems** such as global warming and pollution, the buildup of toxic and nuclear wastes and the rapid erosion of the earth's biodiversity. States—particularly when they act collectively—have the capacity to curb the socially and ecologically harmful consequences of capitalism. They are also more amenable to democratization than cor- porations, notwithstanding the ascendancy of the neoliberal state in the increasingly competitive global economy. There are therefore many good reasons why green political theorists need to think not only critically but also constructively about the state and the state system. While the state is certainly not "healthy" at the present historical juncture, in this book I nonetheless join Poggi by offering "a timid two cheers for the old beast," at least as a potentially more significant ally in the green cause.17

#### Scientific knowledge is best because it subjects itself to constant refinement based on empirical evidence

**Hutcheon** **93**—former prof of sociology of education at U Regina and U British Columbia. Former research advisor to the Health Promotion Branch of the Canadian Department of Health and Welfare and as a director of the Vanier Institute of the Family. Phd in sociology, began at Yale and finished at U Queensland. (Pat, A Critique of "Biology as Ideology: The Doctrine of DNA", http://www.humanists.net/pdhutcheon/humanist%20articles/lewontn.htm)

The introductory lecture in this series articulated the increasingly popular "postmodernist" claim that all science is ideology. Lewontin then proceeded to justify this by stating the obvious: that scientists are human like the rest of us and subject to the same biases and socio-cultural imperatives. Although he did not actually say it, his comments seemed to imply that the enterprise of scientific research and knowledge building could therefore be no different and no more reliable as a guide to action than any other set of opinions. The trouble is that, **in order to reach such an conclusion, one would have to ignore all those aspects of the scientific endeavor that do** in fact **distinguish it from other** **types** and sources **of belief formation**.¶ Indeed, if the integrity of the scientific endeavor depended only on the wisdom and objectivity of the individuals engaged in it we would be in trouble. North American agriculture would today be in the state of that in Russia today. In fact it would be much worse, for the Soviets threw out Lysenko's ideology-masquerading-as-science decades ago. Precisely because an alternative scientific model was available (thanks to the disparaged Darwinian theory) the former Eastern bloc countries have been partially successful in overcoming the destructive chain of consequences which blind faith in ideology had set in motion. This is what Lewontin's old Russian dissident professor meant when he said that the truth must be spoken, even at great personal cost. How sad that Lewontin has apparently failed to understand the fact that while scientific knowledge -- with the power it gives us -- can and does allow humanity to change the world, ideological beliefs have consequences too. By rendering their proponents politically powerful but rationally and instrumentally impotent, they throw up insurmountable barriers to reasoned and value-guided social change.¶ What are the crucial differences between ideology and science that Lewonton has ignored? Both Karl Popper and Thomas Kuhn have spelled these out with great care -- the former throughout a long lifetime of scholarship devoted to that precise objective. Stephen Jay Gould has also done a sound job in this area. How strange that someone with the status of Lewontin, in a series of lectures supposedly covering the same subject, would not at least have dealt with their arguments!¶ Science has to do with the **search for regularities** in what humans experience of their physical and social environments, beginning with the most simple units discernible, and gradually moving towards the more complex. It has to do with expressing these regularities in the clearest and most precise language possible, so that cause-and-effect relations among the parts of the system under study can be **publicly and rigorously tested**. And it has to do with devising explanations of those empirical regularities which have survived all attempts to falsify them. These explanations, once phrased in the form of testable hypotheses, become **predictors of future events**. In other words, they lead to further conjectures of additional relationships which, in their turn, **must survive repeated public attempts to prove them wanting** -- if the set of related explanations (or theory) is to continue to operate as a fruitful guide for subsequent research.¶ This means that **science, unlike** mythology and **ideology, has a self-correcting mechanism at its very heart.** A conjecture, to be classed as scientific, must be amenable to empirical test. **It must, above all, be open to refutation by experience**. There is a rigorous set of rules according to which hypotheses are formulated and research findings are arrived at, reported and replicated. It is this **process** -- not the lack of prejudice of the particular scientist, or his negotiating ability, or even his political power within the relevant university department -- that ensures the reliability of scientific knowledge. The conditions established by the community of science is one of precisely defined and regulated "intersubjectivity". Under these conditions the theory that wins out, and subsequently prevails, does so not because of its agreement with conventional wisdom or because of the political power of its proponents, as is often the case with ideology. **The survival of a scientific theory** such as Darwin's **is due**, instead, **to its power to explain and predict observable regularities in human experience**, **while withstanding** worldwide **attempts to refute it** -- **and proving itself open to elaboration and expansion in the process**. **In this sense only is scientific knowledge objective and universal. All this has little relationship to the claim of an absolute universality of objective "truth" apart from human strivings** that Lewontin has **attributed to scientists**.¶ Because ideologies, on the other hand, do claim to represent truth**, they are incapable of** **generating a means by which they can be corrected** **as circumstances change.** Legitimate science makes no such claims. Scientific tests are not tests of verisimilitude. **Science does not aim for "true" theories** **purporting to reflect an accurate picture of the "essence" of reality. It leaves such claims of infallibility to ideology**. The tests of science, therefore, are in terms of workability and falsifiability, and its propositions are accordingly tentative in nature. **A successful scientific theory is** one which, while guiding the research in a particular problem area, is **continuously** elaborated, **revised and refined**, until it is eventually superseded by that very hypothesis-making and testing process that it helped to define and sharpen. An ideology, on the other hand, would be considered to have failed under those conditions, for the "truth" must be for all time. More than anything, it is this difference that confuses those ideological thinkers who are compelled to attack Darwin's theory of evolution precisely because of its success as a scientific theory. For them, and the world of desired and imagined certainty in which they live, that very success in contributing to a continuously evolving body of increasingly reliable -- albeit inevitably tentative -- knowledge can only mean failure, in that the theory itself has altered in the process.

## \*\*\* 2AC

### 2AC—VTL

**Without survival there cannot be value.**

**Kacou 8** (Amien WHY EVEN MIND? On The A Priori Value Of “Life”, Cosmos and History: The Journal of Natural and Social Philosophy, Vol 4 cosmosandhistory.org/index.php/journal/article/view/92/184)

Furthermore, that manner of finding things good that is in pleasure can certainly not exist in any world without consciousness (i.e., without “life,” as we now understand the word)—slight analogies put aside. In fact, we can begin to develop a more sophisticated definition of the concept of “pleasure,” in the broadest possible sense of the word, as follows: it is the common psychological element in all psychological experience of goodness (be it in joy, admiration, or whatever else). In this sense, pleasure can always be pictured to “mediate” all awareness or perception or judgment of goodness: there is pleasure in all consciousness of things good; pleasure is the common element of all conscious satisfaction. In short, it is simply the very experience of liking things, or the liking of experience, in general. In this sense, pleasure is, not only uniquely characteristic of life but also, the core expression of goodness in life—the most general sign or phenomenon for favorable conscious valuation, in other words. This does not mean that “good” is absolutely synonymous with “pleasant”—what we value may well go beyond pleasure. (The fact that we value things needs not be reduced to the experience of liking things.) However, what we value beyond pleasure remains a matter of speculation or theory. Moreover, we note that a variety of things that may seem otherwise unrelated are correlated with pleasure—some more strongly than others. In other words, there are many things the experience of which we like. For example: the admiration of others; sex; or rock-paper-scissors. But, again, **what they are is irrelevant** in an inquiry on **a priori value**—what gives us pleasure is a matter for empirical investigation. Thus, we can see now that, in general, something primitively valuable is attainable in living—that is, pleasure itself. And it seems equally clear that we have a priori logical reason to pay attention to the world in any world where pleasure exists. Moreover, we can now also articulate a foundation for a security interest in our life: since the good of pleasure can be found in living (to the extent pleasure remains attainable),[17] and **only in living**, therefore, **a priori,** life ought to be **continuously** (and indefinitely) **pursued** at least for the sake of preserving the possibility of finding that good. However, this platitude about the value that can be found in life turns out to be, at this point, insufficient for our purposes. It seems to amount to very little more than recognizing that our subjective desire for life in and of itself shows that life has some **objective value**. For what difference is there between saying, “living is unique in benefiting something I value (namely, my pleasure); therefore, I should desire to go on living,” and saying, “I have a unique desire to go on living; therefore I should have a desire to go on living,” whereas the latter proposition immediately seems senseless? In other words, “life gives me pleasure,” says little more than, “I like life.” Thus, we seem to have arrived at the conclusion that the fact that we already have some (**subjective) desire for life** shows life to have some (**objective) value**. But, if that is the most we can say, then it seems our enterprise of justification was quite superficial, and the subjective/objective distinction was useless—for all we have really done is highlight the correspondence between value and desire. Perhaps, our inquiry should be a bit more complex.

### 2AC—Fear Good

**Repeated meta-analyses prove fear appeals motivate adaptive behavior.**

**Witte and Allen 2k** (Kim, Prof. Comm. – MSU, and Mike, Prof. Comm. – U. Wisconsin Milwaukee, Health Education & Behavior, “A Meta-Analysis of Fear Appeals: Implications for Effective Public Health Campaigns”, 27:5, October, Sage Journals)

At least three meta-analyses have been conducted on the fear appeal literature. Boster and Mongeau8 and Mongeau9 examined the influence of a fear appeal on perceived fear (the manipulation check; i.e., did the strong vs. weak fear appeals differ significantly in their influence on measures of reported fear), attitudes, and behaviors. They found that on average, fear appeal manipulations produced moderate associations between reported fear and strength of fear appeal (r = .36 in Boster and Mongeau and r = .34 in Mongeau) and modest but reliable relationships between the strength of a fear appeal and attitude change (r = .21 in Boster and Mongeau and r = .20 in Mongeau) and the strength of a fear appeal and behavior change (r = .10 in Boster and Mongeau and r = .17 in Mongeau). Sutton7 used a different meta-analytic statistical method (z scores) and reported significant positive effects for strength of fear appeal on intentions and behaviors. None of the meta-analyses found support for a curvilinear association between fear appeal strength and message acceptance. Overall, the previous meta-analyses suggested that fear appeal manipulations work in producing different levels of fear according to different strengths of fear appeal messages. Furthermore, the meta-analyses suggest that the stronger the fear appeal, the greater the attitude, intention, and behavior change.

### 2AC—Lanza

**Lanza’s is a stem-cell biologist and he doesn’t understand physics – people aren’t particles, they are unique organizations of particles that can’t be replicated**

**Myers, 9** - biologist and associate professor at the [University of Minnesota](http://www.morris.umn.edu/) (PZ, “The dead are dead”, 12/10, <http://scienceblogs.com/pharyngula/2009/12/the_dead_are_dead.php>)

Lanza has respectable credentials as a stem cell biologist, but he's also the author of one of those all-encompassing, total-explanation-of-the-universe, crackpot theories, which is his, and which belongs entirely to him, called "biocentrism." We know this because his tag line in the article is "Robert Lanza, MD is considered one of the leading scientists in the world. He is the author of "Biocentrism," a book that lays out his theory of everything." I've noticed that leading scientists tend not to have to introduce themselves by declaring that they are a leading scientist, but that's another issue. Lanza recently lost a sister in an accident, and most of his article seems to be a kind of emotional denial, that this tragedy cannot have happened and his sister really is alive and well somewhere. I feel for him — I've also lost a sister, and wish I could see her again — but this is not a reason to believe death doesn't happen. I've stubbed my toe and wished with some urgency that it hadn't happened, but the universe is never obliging about erasing my mistakes. But then Lanza goes on to babble about quantum physics and many-worlds theory. Although individual bodies are destined to self-destruct, the alive feeling - the 'Who am I?'- is just a 20-watt fountain of energy operating in the brain. But this energy doesn't go away at death. One of the surest axioms of science is that energy never dies; it can neither be created nor destroyed. But does this energy transcend from one world to the other? Consider an experiment that was recently published in the journal Science showing that scientists could retroactively change something that had happened in the past. Particles had to decide how to behave when they hit a beam splitter. Later on, the experimenter could turn a second switch on or off. It turns out that what the observer decided at that point, determined what the particle did in the past. Regardless of the choice you, the observer, make, it is you who will experience the outcomes that will result. The linkages between these various histories and universes transcend our ordinary classical ideas of space and time. Think of the 20-watts of energy as simply holo-projecting either this or that result onto a screen. Whether you turn the second beam splitter on or off, it's still the same battery or agent responsible for the projection. I have heard that first argument so many times, and it is facile and dishonest. We are not just "energy". We are a pattern of energy and matter, a very specific and precise arrangement of molecules in movement. **That can be destroyed**. When you've built a pretty sand castle and the tide comes in and washes it away, the grains of sand are still all there, but what you've lost is the *arrangement* that you worked to generate, and which you appreciated. Reducing a complex functional order to nothing but the constituent parts is an insult to the work. If I were to walk into the Louvre and set fire to the Mona Lisa, and afterwards take a drive down to Chartres and blow up the cathedral, would *anyone* defend my actions by saying, "well, science says matter and energy cannot be created or destroyed, therefore, Rabid Myers did no harm, and we'll all just enjoy viewing the ashes and rubble from now on"? No. That's crazy talk. We also wouldn't be arguing that the painting and the architecture have transcended this universe to enter another, nor would such a pointless claim ameliorate our loss in *this* universe. The rest of his argument is quantum gobbledy-gook. The behavior of subatomic particles is not a good guide to what to expect of the behavior of large bodies. A photon may have no rest mass, but I can't use this fact to justify my grand new weight loss plan; quantum tunnelling does not imply that I can ignore doors when I amble about my house. People are not particles! We are the product of the aggregate behavior of the many particles that constitute our bodies, and you cannot ignore the importance of these higher-order relationships when talking about our fate. The rational atheist view is simpler, clearer, and I think, more true. Lanza's sister is dead, and so is mine; that means the features of their independent existence that were so precious to us, that made them interesting, thinking, behaving human beings, have ceased to exist. The 20-watts of energy are dissipating as heat, and can't be brought back. They are lost to us, and someday we will end, too. **We *should* feel grief**. **Pretending that they have 'transcended' into some novel quantum mechanical state in which their consciousness persists**, or that they are shaking hands with some anthropomorphic spiritual myth in never-never land, **does a disservice to ourselves**. The pain is real. Don't deny it. Use it to look at the ones you love who still live and see what you can do to make our existence now a little better, and perhaps a little more conducive to keeping our energies patterned usefully a little longer.

### 2AC—Critique

**Method should not be considered a pre-requisite. Evaluate the desirability of the plan versus the alternative, not competing theoretical systems.**

**Elliot 7** (Kevin, Philosophy @ South Carolina “Norton’s Conception of Sustainability: Political, Not Metaphysical” *Environmental Ethics* 29 p. 17-20)

A second reason for Norton to adopt a political conception of sustainability is that it would actually seem to be more compatible with the pragmatist theory that he so fervently espouses. Charles Sanders Peirce himself insisted that we can be confident of arriving at the truth only in the long run, whereas our current inquiries may just cluster around it in the same way that a set of arrows clusters around a bull’s eye.43 Thus, Norton would seem to face a problem of reflexivity if he were to claim that his own pragmatist theories of truth, language, knowledge, and ethics are in fact true. According to Peirce, one can ascertain their truth only as they compete with opposing philosophical theories. Thus, it seems much more reasonable, given Norton’s own pragmatist theory of truth, for him to encourage a multitude of “metaphysical” conceptions of sustainability that can be tested over time.44 To do otherwise would seem to close off dialogue and experimentation, which would run quite contrary to the ethos of pragmatism.45 Insofar as we need to choose some policies for addressing environmental issues at the present time, however, he could encourage everyone to rally around a shared conception of sustainability at the “political” level. A third reason for Norton to prefer a political conception of sustainability to a metaphysical one is that it seems to be more compatible with his desire to set aside theoretical disagreements and develop **compromise solutions** that people with a **wide variety of perspectives** can accept. The actual content of his theory of sustainability clearly reflects his desire to develop an inclusive process that can bring stakeholders together to accept a common set of environmental goals and indicator measures, even if they accept those goals and measures for a variety of different reasons, based on a variety of different theories and value commitments. Adopting a political conception of sustainability essentially takes the same inclusive, compromising approach that Norton espouses for making policy decisions and applies it to the “meta” level of choosing the democratic institutions that structure the decision-making process. In contrast, if Norton were to adopt a metaphysical conception of sustainability, then he would be, in effect, espousing an inclusive approach to resolving disagreements at the level of environmental policy making but adopting a very exclusive approach to resolving disagreements at the “meta” level of theorizing about the policy process. In other words, he would be expecting everyone to adopt his account of sustainability based on the appeal of his own philosophical theory. Thus, Norton’s account as a whole would seem to be more coherent and internally consistent to the extent that he adopts a political conception of sustainability. V. SIGNIFICANCE FOR ENVIRONMENTAL PHILOSOPHY The significance of my distinction in this paper between political and metaphysical conceptions of sustainability may go beyond its potential to clarify Norton’s recent book. In particular, it may provide a conceptual framework for thinking about the relationship between some of the major strands in contemporary environmental ethics. As I have emphasized in this paper, some environmental pragmatists, including Norton, have suggested that traditional approaches to environmental ethics (which have focused on developing nonanthropocentric ethical theories) are of little practical use.46 Other environmental ethicists have worried that environmental pragmatism confines itself to examining the method and process of making environmental decisions, without providing a sufficiently rich moral framework to safeguard the rights and moral claims associated with nonhuman entities and processes.47 Perhaps one could conceptualize much of the work being done by environmental pragmatists as an attempt to formulate “political” conceptions of sustainability and of other ideas that are significant for environmental policy. (Note that in this section I use the label “environmental pragmatism” to refer to the broad group of philosophical projects that are discussed, for example, in Andrew Light and Eric Katz’s seminal book *Environmental Pragmatism*, and not merely to refer to environmental philosophy that draws inspiration from classical American pragmatists.48) In contrast, much of the other work in environmental philosophy may focus on developing “metaphysical” conceptions that are based on debatable philosophical principles. One could make this suggestion even more plausible by “loosening” Rawls’ distinction between political and metaphysical conceptions in at least two ways. First, one might insist not that a political conception be acceptable to *all* those who accept the basic tenets of democratic political culture, but rather that it be acceptable to a somewhat *smaller* group of individuals, such as all environmentalists. The result would be similar to what Andrew Light seems to espouse as the goal of “metaphilosophical pragmatism.”49 In other words, this revised notion of a political conception would refer to proposals that all environmentalists could support, even though they might espouse differing comprehensive philosophical theories. A second potential way to alter Rawls’ distinction between political and metaphysical conceptions might be to include any shared policy decisions under the rubric of a political conception or agreement, even if they relate to more than just the basic structures of society. This alteration would allow policy agreements regarding specific environmental issues or cases (as opposed to general political institutions) to be labeled as “political.” These agreements would be similar to what John Dryzek calls “workable agreements” or what Cass Sunstein calls “**incompletely theorized agreements**.”50 In Paul Thompson’s work on pragmatist approaches to water disputes, he also promotes shared agreements of this sort.51 These “political” proposals would contrast with “metaphysical” proposals, which would be acceptable only to proponents of **particular** moral or religious **frameworks**. Thinking about the relationships between these different strands of environmental philosophy in this way may have several advantages. First, by drawing a comparison with Rawls’ famous distinction between political and metaphysical conceptions of justice, some of the literature on the strengths and weaknesses of Rawls’ work might prove useful for evaluating these different approaches to environmental philosophy. Another advantage of this framework is its clarification that at least some of the work by environmental pragmatists can be seen as complementary (rather than conflicting) with other projects in environmental philosophy. For example, one can think of at least some pragmatists as trying to develop political decision-making procedures that everyone can accept, whereas many traditional environmental ethicists aim to develop theoretical reasons for choosing (within a particular decision-making procedure) one policy option rather than another. Also, the traditional environmental ethicists might investigate the ramifications of particular comprehensive ethical theories for contemporary environmental disputes, whereas many pragmatists would search for policy proposals that a number of **different ethical theories could all support**. In other words, the pragmatists could be playing the valuable role of promoting action by searching for areas of agreement among different thinkers and social groups. Nevertheless, because real people generally hold comprehensive views that go far beyond these limited areas of agreement, there are still important tasks to be done by philosophers who explore the foundations and ramifications of these comprehensive systems.

**Prioritize environmental existence over framing and ontology.**

**Wapner 3** Paul Prf. And Director of the Global Environmental Policy Program @ American “Leftist Criticism of ‘Nature’” *Dissent* Winter p. 74-75

The third response to eco-criticism would require critics to acknowledge the ways in which they themselves silence nature and then to respect the sheer otherness of the nonhuman world. Postmodernism prides itself on criticizing the urge toward mastery that characterizes modernity. But isn’t mastery exactly what postmodernism is exerting as it captures the nonhuman world within its own conceptual domain? Doesn’t postmodern cultural criticism deepen the modernist urge toward mastery by eliminating the ontological weight of the nonhuman world? What else could it mean to assert that there is no such thing as nature? I have already suggested the postmodernist response: yes, recognizing the social construction of “nature” *does* deny the self-expression of the nonhuman world, but how would we know what such self-expression means? Indeed, nature doesn’t speak; rather, some person always speaks on nature’s behalf, and whatever that person says is, as we all know, a social construction. All attempts to listen to nature are social constructions—except one. Even the most radical postmodernist must acknowledge the distinction between physical existence and nonexistence. As I have said, postmodernists accept that there is a physical substratum to the phenomenal world even if they argue about the different meanings we ascribe to it. This acknowledgment of physical existence is crucial. We can’t ascribe meaning to that which doesn’t appear. What doesn’t exist can manifest no character. Put differently, yes, the postmodernist should rightly worry about interpreting nature’s expressions. And all of us should be wary of those who claim to speak on nature’s behalf (including environmentalists who do that). But we need not doubt the simple idea that a prerequisite of expression is existence. This in turn suggests that preserving the nonhuman world—in all its diverse embodiments—must be seen by eco-critics as a fundamental good. Eco-critics must be supporters, in some fashion, of environmental preservation. Postmodernists reject the idea of a universal good. They rightly acknowledge the difficulty of identifying a common value given the multiple contexts of our value-producing activity. In fact, if there is one thing they vehemently scorn, it is the idea that there can be a value that stands above the individual contexts of human experience. Such a value would present itself as a metanarrative and, as Jean- François Lyotard has explained, postmodernism is characterized fundamentally by its “incredulity toward meta-narratives.” Nonetheless, I can’t see how postmodern critics can do otherwise than accept the value of preserving the nonhuman world. The nonhuman is the extreme “other”; it stands in contradistinction to humans as a species. In understanding the constructed quality of human experience and the dangers of reification, postmodernism inherently advances an ethic of respecting the “other.” At the very least, respect must involve ensuring that the “other” actually continues to exist. In our day and age, this requires us to take responsibility for protecting the actuality of the nonhuman. Instead, however, we are running roughshod over the earth’s diversity of plants, animals, and ecosystems. Postmodern critics should find this particularly disturbing. If they don’t, they deny their own intellectual insights and compromise their fundamental moral commitment. Now, what does this mean for politics and policy, and the future of the environmental movement? Society is constantly being asked to address questions of environmental quality for which there are no easy answers. As we wrestle with challenges of global climate change, ozone depletion, loss of biological diversity, and so forth, we need to consider the economic, political, cultural, and aesthetic values at stake. These considerations have traditionally marked the politics of environmental protection. A sensitivity to eco-criticism requires that we go further and include an ethic of otherness in our deliberations. That is, we need to be moved by our concern to make room for the “other” and hence fold a commitment to the nonhuman world into our policy discussions. I don’t mean that this argument should drive all our actions or that respect for the “other” should always carry the day. But it must be a central part of our reflections and calculations. For example, as we estimate the number of people that a certain area can sustain, consider what to do about climate change, debate restrictions on ocean fishing, or otherwise assess the effects of a particular course of action, we must think about the lives of other creatures on the earth—and also the continued existence of the nonliving physical world. We must do so not because we wish to maintain what is “natural” but because we wish to act in a morally respectable manner. I have been using postmodern cultural criticism against itself. Yes, the postmodernists are right: we can do what we want with the nonhuman world. There is nothing essential about the realm of rocks, trees, fish, and climate that calls for a certain type of action. But postmodernists are also right that the only ethical way to act in a world that is socially constructed is to respect the voices of the others— of those with whom we share the planet but with whom we may not share a common language or outlook. There is, in other words, a limit or guiding principle to our actions. As political theorist Leslie Thiele puts it, “One can’t argue for the diversity of views of ‘nature’ without taking a stand for the diversity of nature.”

**Life logically precedes essence.**

**Zimmerman 90** professor of philosophy – Tulane University (Michael E, Confrontation with Modernity p. 265-266)

As I mentioned above, much of deconstruction is in fact motivated by a (frequently hidden) liberatory interest. If the technological society eliminates all differences and reduces everything to the same monochromatic raw material, however, whence can arise the "fissure" which causes the authoritarian system of signifiers to tremble, to quake, to loosen up? While significant changes in a prevailing cultural paradigm cannot be explained merely in terms of arbitrary human decisions, neither can free human decisions be discounted in such an explanation. Humans are thrown at birth into a cultural discourse and, hence, into a destiny which they themselves did not choose. People cannot return to the "origins" of that discourse in order to start a new one. To a large extent, then, individuals are for the most part players in a game of institutional, social, political, economic, literary, artistic, and religious discourse, only part of which they comprehend. Despite being shaped by such discourse, however, individuals are not merely automatons at the mercy of an inexorable destiny. Rather, they may also bring to their historical discourses unexpected insights, novel variations, new possibilities which reveal it is by no means fixed but instead is open to disrupture. It goes without saying, of course, that the possibility for such variation and novelty is **greatly enhanced** by political systems which both guarantee and encourage self-expression and which also promote the economic means necessary for individuals to develop the capacity for self-expression. Unfortunately, however, Heidegger regarded "self-expression" and "democratic principles" as bourgeois ideals symptomatic of the one-dimensional atomism and egoism of a modern subjectivism which was blind to the fact that the "actors" on the stage of human history were players in a drama that they did not themselves compose. If we may benefit from Heidegger's insight that modern technology is characterized by a one-dimensional way of disclosing entities, we must also be willing to criticize his presuppositions about the extent to which humans are incapable of resisting and developing alternatives to that disclosure.

**Empirically no link between enframing and war.**

**Kaufman 9** Prof Poli Sci and IR – U Delaware (Stuart J, “Narratives and Symbols in Violent Mobilization: The Palestinian-Israeli Case,” *Security Studies* 18:3, 400 – 434)

Even when hostile narratives, group fears, and opportunity are strongly present, war occurs only if these factors are harnessed. Ethnic narratives and fears must combine to create significant ethnic hostility among mass publics. Politicians must also seize the opportunity to manipulate that hostility, evoking hostile narratives and symbols to gain or hold power by riding a wave of chauvinist mobilization. Such mobilization is often spurred by prominent events (for example, episodes of violence) that increase feelings of hostility and make chauvinist appeals seem timely. If the other group also mobilizes and if each side's felt security needs threaten the security of the other side, the result is a security dilemma spiral of rising fear, hostility, and mutual threat that results in violence. A virtue of this symbolist theory is that symbolist logic explains why ethnic peace is more common than ethnonationalist war. Even if hostile narratives, fears, and opportunity exist, severe violence usually can still be avoided if ethnic elites skillfully define group needs in moderate ways and collaborate across group lines to prevent violence: this is consociationalism.17 War is likely only if hostile narratives, fears, and opportunity spur hostile attitudes, chauvinist mobilization, and a security dilemma.

**Reject their standing reserve impact—Thinking mass death in terms of being and the equation of agriculture with the holocaust elevates the perpetrators and prevents us from addressing specific causes of atrocity.**

Todd **PRESNER** Comp Lit and Jewish Studies @ UCLA ‘**6** “Heidegger, Arendt, and the Modernity of Mass Death” *Telos* Vol. 135 Summer p. 102-105

To understand this strange phrase, we need to look back to Heidegger's second Bremen lecture, "The En-framing" ["Das Ge-Stell"], where he clarifies the concept of Bestandstucke. In this lecture, he is concerned with how technology reduces the essence of being by turning it into something available, able to be used, stored, manipulated, and distributed at will. Technology-such as tractors, power plants, motorized vehicles, and, we might add, gas chambers-"en-frames" being by transforming it into an object to be tapped and, as necessary, kept in reserve or stock, as a Bes- tand. He explains: What the machine brings out piece for piece, it puts in the reserve of that which can be ordered. That which is brought out is a piece of stock [Bestand-Stack] The pieces of stock are the same piece for piece. Their piecemeal character demands this uniformity. As the same thing, the pieces are cut off from one another in the most extreme sense; in this way, they solidify and secure precisely their piecemeal character . ... A piece of stock is replaceable by another . ... Ordinarily, we imagine something lifeless when we think of the word "piece," although one can speak of a piece of cattle. The piece of stock is, however, bound to an order from which it is placed. Man also belongs, certainly in this regard, to this framing, be it that he works on a machine, be it that he constructed and built the machine within the order of the machinery .... Man is in this way a piece of stock [Bestand-Stack], in the strong sense of the words stock and piece. (BV 36-37) In other words, technology has a leveling effect, producing over and over again objects that are, in their essential qualities, the same. These objects- as replaceable, uniform pieces-can be called up, used, and consumed. In the concentration camps and gas chambers, according to Heidegger, technology was used to turn human beings into "pieces of stock in a reserve of the fabrication of corpses." Their bodies became "uniform" pieces, "cut off" from and "replaceable" by one another; the corpses in the death camps are "the same piece for piece." Human beings have been reduced, in Arendt's horribly accurate phrase, to "superfluous human material," which is, in its corporeal form, all the same (OT 443). It is in this regard that Heidegger can argue that "agriculture is now a motorized food-industry, in essence the same thing as the fabrication of corpses in the gas chambers and death camps" (BV 27). Reserves of food, like reserves of corpses, are produced over and over again, in the same fashion, in the same units or pieces, with the same kind of machinery. In every case-whether the motorized food industry, the production of corpses in the gas chambers, or the starvation of millions in China-individuality is replaced by the mechanized, mass production of the same. We can now understand what Heidegger means when he maintains that the victims of the concentration camps and gas chambers did not die, that "everywhere there is massive misery of countless, atrocious deaths that have not died." The victims may not be alive anymore, but they did not die either; instead, they were turned into pieces of corpses, reserves of human material. To become a "piece of stock in the reserve of the fabrica- tion of corpses" is radically incommensurate with Heidegger's conception of death as "the shelter of the truth of being." Although the inmates in the concentration camps existed every second of every day toward death as a permanent possibility, their death does not count as authentic because it conferred no individuality. Dying is a permanent potentiality for being, my ownmost, insuperable possibility, which individualizes the conduct of my life. In the final analysis, the victims of the Nazi death camps did not die, and, hence, they have no "truth of being." Heidegger will not even name the victims as Jews because masses of corpses who did not die have no individual or group identities. Unlike Arendt, Heidegger never attempted to understand the specific- ity or genealogy of the concentration camps. He refused to name, let alone describe, the victims and perpetrators or even speak about their actions in anything but the passive tense. And, at the same time, he never gave up the existential conception of authentic death, despite the fact that the distinction between inauthentic "fleeing" from death and authentic "being- towards-death" no longer made sense in a sociality designed exclusively for anonymous mass death. The very distinction between inauthenticity and authenticity is only tenable in a life-world where the possibility exists either to evade death by covering up the fact that it could come at any moment, or to live in such a way that death is always considered my own- most possibility, which no one can take away from me. In the death-world, one could neither flee in the face of death, nor could one become individualized by being-towards-death. The possibility of conceiving death authentically and inauthentically is foreclosed because the nature and presuppositions of death itself have changed. Mass death does not indi- vidualize but anonymize; death is no longer a possibility and individual potentiality for being but an absolute actuality, taken away from me and enforced by oblivion. Nevertheless, perhaps it is tempting to be somewhat more charitable to Heidegger by recognizing how his remarks on the death camps betray a certain insight into the Nazi debasement of death and dying, even if he never mentioned the Holocaust or the victims by name. As Agamben wrote in his analysis of Heidegger: "[C]uriously enough, for Heidegger the 'fabrication of corpses' implied, just as it did for Levi, that it is not possible to speak of death in the case of extermination victims, that they did not truly die, but were rather only pieces produced in a process of an assembly line production."" After all, it was Primo Levi who suggested, with reference to the anonymous masses of Muselmänner tottering on the edge of living and dying, "One hesitates to call their death death."" it would seem that both Heidegger and Levi recognized the way in which the sociality of the death-world and the phenomenon of mass death not only produced masses of "walking corpses" but also degraded dying itself. As Agamben writes, "it is no longer possible truly to speak of death, that what took place in the camps was not death, but rather something infinitely worse, more appalling. In Auschwitz, people did not die; rather, corpses were produced. Corpses without death, non-humans whose decease is debased into a matter of serial production. 04

However, I think Heidegger is ultimately saying something else. Although his recognition of the debasement of death may have accorded with Arendt and Levi's trajectory of thought, Heidegger is also making a distinction between those who are capable of dying in its essence and those who are not. This is a distinction made from a life-world in which deportations, arbitrary imprisonment, starvation, terror, gassing, and mass death are not the structuring features of being in the world. According to Heidegger, those who were killed en masse did not die because dying is reserved for those who are capable of conducting their lives in such a way that they can still bear death in its essence. This distinction, it seems to me, has the effect of tacitly elevating the perpetrators' mode of being in the world precisely because they can bear death in its essence. Even as a mass murderer, the Nazi officer could still "authentically" be towards his own, individualized death. This fundamental structuring distinction between authentic and inauthentic dying becomes absurd, if not thought- less, in a sociality where anonymous mass death is its defining and ultimate purpose.

**Our predictions are different from past failures.**

**Voß 9** (Jan-Peter, Innovation in Governance Research Group, Institute of Sociology/Center for Technology and Society Technische Universita¨t Berlin, “Designing long-term policy: rethinking transition Management” *Policy Sci* 42 p. 276-277)

Long-term policy design is politically **salient again**. Substantive policy goals and policy processes are re-emerging that seek to restructure radically key social systems in response to a variety of social challenges. In the context of debates about sustainable development there is growing policy interest in stepping away from incremental developments along ‘business-as-usual’ trajectories. Policy-makers **increasingly consider** how conventional measures (such as environmental taxes and regulations aimed at reforming collective behaviours, economic sectors and technologies) can be overlaid with a more integrated package that delivers a ‘sustainability transition’ to radically more sustainable societal systems over the long-term. Take our energy systems as a case in point. A commitment taken by governments of the G8 in 2008 is an indication that a consensus is emerging on a global target to cut greenhouse gas emissions by 50% by 2050. Current energy systems based in fossil fuels are currently responsible for a majority of these emissions. Given that these energy systems underpin economic activity in other areas too, then meeting climate change targets implies transforming our energy systems into radically decarbonised forms. There is a growing body of academic work on the implications of such long-term challenges for the concepts and practices of governance.1 A notable example of a new generation of long-term policy design is the ‘transition management’ approach instituted by the Dutch government since 2001 (see the article by Kemp and Rotmans 2009). The development and implementation of this design are the focus of this special issue. This interest contrasts sharply with the disrepute into which long-term policies had fallen after the 1970s. Modernist conceptions of societal planning had reached a crisis point. The not unconnected combination of an increasingly tarnished track record, an apparent inability to rise to macro-economic problems and welfare crises, and the rise of neo-liberal ideology, all contributed to a decline in long-range planning ambitions in OECD governments and elsewhere. The collapse of the planned economies a decade later confirmed this newly received wisdom. Long-term policy had become linked with longrange, wide-scale and highly interventionist public planning. And that kind of planning no longer had a good reputation. This historical context prompts an intriguing question: whether interest in ‘transitions towards sustainable development’ signals a return to long-range policy design? Does this open space for more ambitious initiatives in sustainable development? The collective urge to reflect, anticipate and intervene in societal development is a recurring theme in the policy science literature (e.g. Mill 1862; Dewey 1927; Lindblom 1959/1969; Vickers 1965; and more recently, Elmore 1985; Fischer 1995, 2003; Schon and Rein 1994; Bobrow and Dryzek 1987). Recent long-range policy ideas try to incorporate some of the **painful lessons** from past planning failures; failures which fed the neo-liberal reaction. The current generation of long-term policy approaches appears more ‘**reflexive’**, it avoids the **notion of planning** and is well aware of the **limits to full knowledge** in advance and steering the course of history (Meadowcroft 1999). We consider how this reflexive revival is panning out in the case of TM. Transition management combines an orientation toward a long-term vision of ‘sustainable development’ with short-term experimental learning to probe options and find pathways to realise the vision. Its time horizon is 25–50 years. Over the course of the process the vision may be adapted as learning about options proceeds. This, in turn, may shift criteria for designing and evaluating experiments. This recursive cycle for meeting substantive goals (e.g. reductions in carbon emissions, increases in resource efficiency, enhancements in biodiversity) is a key characteristic of transition management. Another characteristic is the mobilisation of ‘forerunners’ to become involved in ‘transition arenas’, where visions are formulated and experiments are carried out. The concept envisages procedural arrangements that catalyse innovation and societal learning for the sustainable development of sectors like energy, mobility or agriculture. Whilst substantial goals drive the process, transition management refrains from fixing specific measures and strategies too early and too rigidly. At the core is the idea to modulate co-evolutionary dynamics that already drive socio-technical change, and to bend them in ways that facilitate transformative innovation (articulating guiding visions and experimenting with options and pathways). The general approach is one of nurturing and growing rather than planning and controlling long-term societal change.

**Perm – do the plan and all non-mutually exclusive parts of the atlerantive.**

**Perm – do the plan and accept the other side of the topic as per their alternative text.**

**Problem-solution impact is backwards---acting with a flawed epistemology allows us to change that epistemology.**

**Harris 7** (Graham, Adjunct Prf. @ Centre for Environment University of Tasmania, Seeking Sustainability in an age of complexity p. 9-10)

1 am not going to address the global 'litany' at length here. The arguments have been well made by others, especially and most elegantly by E. O. Wilson. What 1 wish to address here is the question: 'Can we grasp the complexity of it all and, if so, what do we do about it?' Given the fundamental nature of the problem the destruction of the biosphere and its ecosystem ser- vices together with the huge changes going on in human societies and cultures driven by globalisation and technological change the precautionary principle would suggest that even if the epistemology is flawed, the data are partial and the evidence is shaky, we should pay attention to the little we know and do whatever is possible to mitigate the situation even if we fundamentally disagree about the means and the ends. The only ethical course of action is, as John Ral- ston Saul writes," based on 'a sense of the other and of inclusive responsibility'. We know enough to act. Ethics is about uncertainty, doubt, system thinking and balancing difficult choices. It is about confronting the evidence**.** Over the past two or three decades, as there has been an increasing appre- ciation of the importance of good environmental management, and as western societies have become more open and the ICT revolution has made informa- tion much more widely available there has been a growing debate between the worlds of science, industry, government and the community around environ- mental ethics and environmental issues and their management. During this period new knowledge has been gained, ideas have changed (sometimes quite fundamentally) and there have been huge changes in government and social institutions and policies. We are all on a recursive journey together: we are lit- erally 'making it up as we go along'. This is not easy and there are no optimal solutions. This is an adaptive process requiring feedback from all parts of the system. Yes, there will be surprises. This is why it is so important that when we act we constantly reflect on what we know and what we are doing about it and where it is all going. As we reach the physical limits of the global biosphere the values we place on things are changing and must change further. A new environmental ethic is required, one that is less instrumental and more embracing. Traditionally there has tended to be a schism between those who take an anthropocentric view (that the world is there for us to use) and those who take the non-anthropocentric view (those who value nature in its own right). Orthodox anthropocentrisni dictates that non-human value is instrumental to human needs and interests. In contrast, non-anthropocentrics take an objectivist view and value nature intrinsically; some may consider the source of value in non-human nature to be independent of human consciousness.45 What is required is a more complex and systems view of ethics which finds a middle ground between the instrumentalist and objectivist views. Norton '46 for example, proposes an alternative and more complex theory of value - a universal Earth ethic - which values processes and dynamics as well as entities and takes an adaptive management view of changing system properties. For sustainable development to occur, choices about values will remain within the human sphere but we should no longer regard human preferences as the only criterion of moral significance. 'Humans and the planet have entwined destinies"' and this will be increasingly true in many and complex ways as we move forward. There are calls for an Earth ethic beyond the land ethic of Aldo Leopold.45 The science of ecology is being drawn into the web .49 Ecologists are becoming more socially and culturally aware and engaged" and the 'very doing' of ecology is becoming more ethical.tm' Some scientists are beginning to see themselves more as agents in relationships with society and less as observers.

**The alternative cannot solve.**

**Environmental management like cap and trade creates better solutions, not error replication.**

**Harris 7** (Graham, Adjunct Prf. @ Centre for Environment University of Tasmania, Seeking Sustainability in an age of complexity p. 235-236)

In global science and remote sensing programmes there is a need for techno- logical, institutional and intellectual resources to store, conceptualise, process and visualise the data coming in, 'There is a real data assimilation problem, which has to deal with errors and uncertainties as well as parameterisation and scaling issues. What are required are sources of data about the present status of resources and trends over time, conceptual models and prediction engines to assimilate the data and turn it into information, arid institutions and systems to enable action to be taken where required. With the explosion of data and information systems in the past two or three decades, it is the institutional arid governance systems that we are lacking the most. Data systems provide infor- mation, institutional and governance systems allow management action to be taken, but it is values and beliefs that ultimately determine whether anything is done.

In global meteorological observation and weather forecasting we now have some very sophisticated systems to receive the satellite observations as well as predictive models to assimilate the data as they are received. Models of the global atmospheric circulation are continuously updated by streams of detailed information about the present state of the atmosphere. Huge investments have been made in solving some of the problems of data fusion and assimilation across scales and between image and point source data. This improves fore- casting skill and, as we can all see in our daily newspapers, four- to five-day forecasts are now routine and accurate. This is one case where the necessary science, technology, infrastructure and institutional arrangements are in place to effectively assimilate the data and turn them into useful products and out- conies. Other examples of action taken on the basis of monitoring information may be cited. These include the observation of rising CFC concentrations in the atmosphere and the realisation of a connection to the so-called 'ozone hole' in the stratosphere. The observations and process understandings were effectively turned into desirable outcomes through the Montreal protocol and the banning of CFCs in refrigeration and other industrial processes. Other examples are the reduction in emissions of sulphur and nitrogen oxides in North America and Europe, which were shown to cause 'acid rain' and an increase in the acidity of soils and surface waters with consequent damage to forests and fish populations, and the control of nrstrient discharges to lakes, which caused nutrient enrichment (eutrophication) and widespread toxic algal blooms. Finally, I may cite the example of the international Whaling Commission, where clear evi- dence of declining whale numbers led to an international ban on whaling and the declaration of large marine reserves to protect whale species.

So there are clear examples where data on meteorology, global atmospheric chemistry, water quality and anthropogenic impacts on the populations of 'charismatic megafauna' have led to changing practices and regulation lead- ing to desirable outcomes. Success seems to he achieved where the data are clear and the science is explicit, the models are not complex and easily com- municated to both the public and managers, the alternatives are simple and effective, the political and economic pain is not too great and a strong lobby for action exists. In addition, there is a link between strong institutional and governance mechanisms and effective action. If society decides on a change in management practice, it is important to be able to make the decision 'stick'.

## \*\*\* 1AR

### Solvency

#### Criticism of science-based policymaking entrenches elite dominance.

William **ASCHER** Gov’t & Econ @ Claremont McKenna **ET AL** **’10** *Knowledge and Environmental Policy: Re-imagining the boundaries of science and politics* p. 178

A harsh frontal assault on formal science would be a bad idea. On the one hand, the critique would run the risk of being rejected by scientists and policymakers, who would see it as an attack by resentful amateurs ignorant of the importance of the conventions of scientific inquiry. The radical critique of science- that it is merely a social construction-is a laughable notion to the bulk of citizens, scientists, and policymakers, who look to formal science to settle factual issues such as whether a higher concentration of a pollutant will result in higher mortality. The critique that formal science reinforces the social and political status quo also seems to be beyond the point. On the other hand, the harsh assault would provide ammunition for those who wish to minimize the crucial role of formal science in discrediting scientifically unsound policies that serve narrow interests.

#### Energy policy advocacy is a tool not a trap --- we should build momentum and support for energy changes—this answers their state Malthus disad.

**Shove & Walker 7** Elizabeth Sociology @ Lancaster Gordon Geography @ Lancaster “CAUTION! Transitions ahead: politics, practice, and sustainable transition management” *Environment and Planning C* 39 (4)

For academic readers, our commentary argues for loosening the intellectual grip of ‘innovation studies’, for backing off from the nested, hierarchical multi-level model as the only model in town, and for exploring other social scientific, but also systemic theories of change. The more we think about the politics and practicalities of reflexive transition management, the more complex the process appears: for a policy audience, our words of caution could be read as an invitation to abandon the whole endeavour. If agency, predictability and legitimacy are as limited as we’ve suggested, this might be the only sensible conclusion.However, we are with Rip (2006) in recognising the value, productivity and everyday necessity of an ‘**illusion of agency’**, and of the working expectation that a difference can be made even in the face of so much evidence to the contrary. The outcomes of actions are unknowable, the system unsteerable and the effects of deliberate intervention inherently unpredictable and, ironically, it is this that sustains concepts of agency and management. As Rip argues ‘**illusions are productive** because they **motivate action** and repair work, and thus something (whatever) is achieved’ (Rip 2006: 94). Situated inside the systems they seek to influence, governance actors – and actors of other kinds as well - are part of the **dynamics of change**: even if they cannot steer from the outside they are **necessary to processes within**. This is, of course, also true of academic life. Here we are, busy critiquing and analysing transition management in the expectation that somebody somewhere is listening and maybe even taking notice. If we removed that illusion would we bother writing anything at all? Maybe we need such fictions to keep us going, and maybe – fiction or no - somewhere along the line something really does happen, but not in ways that we can anticipate or know.

### AT: Green Biopolitics (Luke)

#### Case outweighs—climate change is a greater risk than green biopolitics.

Robyn **ECKERSLEY** Politcs @ Melbourne ‘**4** *The Green State* p. 89-93

Green poststructuralists have likewise sought to deconstruct the disciplinary effects of biopower and green governmentality, while green critics of technocracy have lamented the cult of the expert the so-called the scientization of politics, and the concomitant disenfranchisement of the lay public and vernacular knowledge in affairs of state administration." The bureaucratic rationality of the administrative state is inn as too rigid, hierarchical, and limited to deal with the variability, nonreducability, and complexity of ecological problems." Bureaucratic rationality responds to complex problems by breaking them down, comparnncntalizing them, and assigning them to different agencies that respond to a hierarchical chain of command. This often leads to the routine displacement of prob- lems acn bureaucratic system boundaries,' Once we add to these developments the more recent revolution in public sector management, we have good reasons to concur with Paul Hint that the traditional liberal architecture has increasingly "become a gross misdescription of the structure of modern societies?" The tenuous link between popular political participation and control and technocratic state administration has also been a major theme in the work of Ulrich Beck. Indeed, Beck (like Martin Janickel argues that politicians and state functionaries act in ways that seek to mask problems rather than solve them. Ecological problems pens because they are generated by the same economic, scientific, and political institutions that are called upon to solve them. While the state cannot but acknowl- edge the ecological crisis, it nonetheless continues to function as qir were not present by denying, donplaying, and naturalizing ecological prob- lems and declining to connect such problems with the basic structure and dynanücs of rccmomic and bureaucratic rationality. According to Beck, this organized irresponsibility can sometimes take on a Kafkaesque form. The state seeks to manufacture security by providing social insurance systems-health services, unemployment benefits, pensions, and workers compensation-but it can provide no protection against major hazards that can pierce the thin veneer of normality and expose the inadequacies of the welfare stare As Beck puts it 'What good is a legal system which prosecutes technically manageable small risks, but legalises large scak hazards on the strength of its authority, foisting them on everyone, including even those multitudes who still resist them?' It might be tempting to conclude from this general critique that states are part of the problem rather than the solution to ecological degradation. With its roots in the peace and antinuclear movements, the green movement has long been critical of the coercive modality of state power-including the state-military-industrial complex-and might therefore be understandably sceptical toward the very poiisibility of reforming or transforming states into mare democratic and ecologically responsive structures of gosemment The notion that the state might come to represent an ecological savior and trustee appears both fanciful and dangerous rather than empowering. Yet such an anti-statist posture cannot withstand critical scrutiny from a critical ecological perspective. The problem seems to be that while states have been associated with violence, insecurity, bureaucratic domination, injustice, and ecological degradation, there is no reason to assume that any alternatives we might imagine or develop will necessarily be free of, or less burdened by, such problems. As Medley Bull warns, violence, insecurity, injustice, and ecological degradation pre-date the state system, and we cannot rule out the possibility that they are likely to survive the demise of the state system, regardless of what new political structures may arise." Now it could be plausibly argued that these problems might be Lessened under a more democratic and possibly decentralized global political architecture (as hioregionalists and other green decentralists have argued). However, there is no basis upon which to assume that they will be lessened any more than under a more deeply democratized state system. Given the seriousness and urgency of many ecological problems (e.g., global warming), building on the state governance structures that already exist seems to be a more fruitful path to rake than any attempt to move beyond or around states in the quest for environmental sustainab.ility.2t' Moreover, as a matter of principle, it can be argued that environmental benefits are public goods that ought best be managed by democratically organized public power, and not by private power." Such an approach is consistent with critical theory's concern to work creatively with current historical practices and associated understandings rather than fashion utopias that have no purchase on such practices and understandings. In short, there is more mileage to be gained by enlisting and creatively developing the existing norms///

,, rules, and practices of state governance in ways that make start power more democratically and ecologically accountable than designing a new architecture of global governance de novo (a daunting and despairing proposition). Skeptics should take heart from the fact that the organized coercive power of democratic states is not a totally untamed power, insofar as such power must be exercised according to the rule of law and principles of democratic oversight. This is not to deny that state power can sometimes he seriously abused (e.g., by the police or national intelligence agencies). Rather, it is merely to argue that such powers are not un- limited and beyond democratic control and redress. The focus of criti- cal ecological attention should therefore be on how effective this control and redress has been, and how it might be strengthened. The same argument may be extended to the bureaucratic arm of the state. In liberal democratic stares, with the gradual enlargement, spe- cialization, and depersonalization of state administrative power have also come legal norms and procedures that limit such power according to the principle of democratic accountability. As (,ianfranco Poggi has observed, at the same time as the political power of the state has become more extensive in terms of its subject matter and reach, so too have claims for public participation in the exercise of this power widened? This is also to acknowledge the considerable scope for further, more deep-seated democratic oversight. Indeed, it is possible to point to a raft of new ecological discursive designs that have already emerged as partial antidotes to the technocratic dimensions of the administrative state, such as community right-to-know legislation, CornmtlnLtV environmental monitoring and reporting, third-party litigation rights, environmental and technology impact assessment, statutory policy advisory committees, citizens' juries, consensus conference.,-, and public environmental inquiries. Each of these initiatives may he understood as attempts to con- front both public and private power with its consequences, to widen the range of voices and perspectives in stare administration, to expose or prevent problem displacement, and/or to ensure that the sites economic, social, and political power that create and/or are responsible for ecological risks are made answerable to all those who may suffer the consequences This is precisely where an ongoing green critical locus on the state can remain productive.