# 1NC

## Offcase

### Framework 1NC

#### A – Interpretation:

#### Topical affirmatives must affirm the resolution through instrumental defense of action by the United States Federal Government.

#### B – Definitions

#### Should denotes an expectation of enacting a plan

#### American Heritage Dictionary 2000 (Dictionary.com)

should. The will to do something or have something take place: I shall go out if I feel like it.

#### Federal government is the central government in Washington DC

Encarta Online 2005,

http://encarta.msn.com/encyclopedia\_1741500781\_6/United\_States\_(Government).html#howtocite

United States (Government), the combination of federal, state, and local laws, bodies, and agencies that is responsible for carrying out the operations of the United States. The federal government of the United States is centered in [Washington, D.C.](http://encarta.msn.com/encyclopedia_761576320/Washington_D_C.html)

#### Resolved implies a policy

Louisiana House 3-8-2005, <http://house.louisiana.gov/house-glossary.htm>

Resolution A legislative instrument that generally is used for making declarations, stating policies, and making decisions where some other form is not required. A bill includes the constitutionally required enacting clause; a resolution uses the term "resolved". Not subject to a time limit for introduction nor to governor's veto. ( Const. Art. III, §17(B) and House Rules 8.11 , 13.1 , 6.8 , and 7.4)

#### C – Vote neg – We have four net benefits

#### First is Decisionmaking

#### The primary purpose of debate should be to improve our skills as decision-makers. We are all individual policy-makers who make choices every day that affect us and those around us. We have an obligation to the people affected by our decisions to use debate as a method for honing these critical thinking and information processing abilities.

Austin J. Freeley and David L. Steinberg – John Carroll University / U Miami – 2009, Argumentation and Debate: Critical Thinking for Reasoned Decision Making, p. 1-4, googlebooks

After several days of intense debate, first the United States House of Representatives and then the U.S. Senate voted to authorize President George W. Bush to attack Iraq if Saddam Hussein refused to give up weapons of mass destruction as required by United Nations's resolutions. Debate about a possible military\* action against Iraq continued in various governmental bodies and in the public for six months, until President Bush ordered an attack on Baghdad, beginning Operation Iraqi Freedom, the military campaign against the Iraqi regime of Saddam Hussein. He did so despite the unwillingness of the U.N. Security Council to support the military action, and in the face of significant international opposition.¶ Meanwhile, and perhaps equally difficult for the parties involved, a young couple deliberated over whether they should purchase a large home to accommodate their growing family or should sacrifice living space to reside in an area with better public schools; elsewhere a college sophomore reconsidered his major and a senior her choice of law school, graduate school, or a job. Each of these\* situations called for decisions to be made. Each decision maker worked hard to make well-reasoned decisions.¶ Decision making is a thoughtful process of choosing among a variety of options for acting or thinking. It requires that the decider make a choice. Life demands decision making. We make countless individual decisions every day. To make some of those decisions, we work hard to employ care and consideration; others seem to just happen. Couples, families, groups of friends, and coworkers come together to make choices, and decision-making bodies from committees to juries to the U.S. Congress and the United Nations make decisions that impact us all. Every profession requires effective and ethical decision making, as do our school, community, and social organizations.¶ We all make many decisions every day. To refinance or sell one's home, to buy a high-performance SUV or an economical hybrid car. what major to select, what to have for dinner, what candidate to vote for, paper or plastic, all present us with choices. Should the president deal with an international crisis through military invasion or diplomacy? How should the U.S. Congress act to address illegal immigration?¶ Is the defendant guilty as accused? The Daily Show or the ball game? And upon what information should I rely to make my decision? Certainly some of these decisions are more consequential than others. Which amendment to vote for, what television program to watch, what course to take, which phone plan to purchase, and which diet to pursue all present unique challenges. At our best, we seek out research and data to inform our decisions. Yet even the choice of which information to attend to requires decision making. In 2006, TIME magazine named YOU its "Person of the Year." Congratulations! Its selection was based on the participation not of ''great men" in the creation of history, but rather on the contributions of a community of anonymous participants in the evolution of information. Through blogs. online networking. You Tube. Facebook, MySpace, Wikipedia, and many other "wikis," knowledge and "truth" are created from the bottom up, bypassing the authoritarian control of newspeople, academics, and publishers. We have access to infinite quantities of information, but how do we sort through it and select the best information for our needs?¶ The ability of every decision maker to make good, reasoned, and ethical decisions relies heavily upon their ability to think critically. Critical thinking enables one to break argumentation down to its component parts in order to evaluate its relative validity and strength. Critical thinkers are better users of information, as well as better advocates.¶ Colleges and universities expect their students to develop their critical thinking skills and may require students to take designated courses to that end. The importance and value of such study is widely recognized.¶ Much of the most significant communication of our lives is conducted in the form of debates. These may take place in intrapersonal communications, in which we weigh the pros and cons of an important decision in our own minds, or they may take place in interpersonal communications, in which we listen to arguments intended to influence our decision or participate in exchanges to influence the decisions of others.¶ Our success or failure in life is largely determined by our ability to make wise decisions for ourselves and to influence the decisions of others in ways that are beneficial to us. Much of our significant, purposeful activity is concerned with making decisions. Whether to join a campus organization, go to graduate school, accept a job oiler, buy a car or house, move to another city, invest in a certain stock, or vote for Garcia—these are just a few of the thousands of decisions we may have to make. Often, intelligent self-interest or a sense of responsibility will require us to win the support of others. We may want a scholarship or a particular job for ourselves, a customer for out product, or a vote for our favored political candidate.

#### Additionally, The best route to improving decision-making is through discussion about public policy

#### Mutually accessible information – There is a wide swath of literature on governmental policy topics – that ensures there will be informed, predictable, and in-depth debate over the aff’s decision. Individual policymaking is highly variable depending on the person and inaccessible to outsiders.

#### Harder decisions make better decisionmakers – The problems facing public policymakers are a magnitude greater than private decisions. We all know plans don’t actually happen, but practicing imagining the consequences of our decisions in the high-stakes games of public policymaking makes other decisionmaking easier.

#### Second is Predictable Limits - The resolution proposes the question the negative is prepared to answer and creates a bounded list of potential affs for us to think about. Debate has unique potential to change attitudes and grow critical thinking skills because it forces pre-round internal deliberation on a of a focused, common ground of debate

Robert E. Goodin and Simon J. Niemeyer- Australian National University- 2003,

When Does Deliberation Begin? Internal Reflection versus Public Discussion in Deliberative Democracy, POLITICAL STUDIES: 2003 VOL 51, 627–649, http://onlinelibrary.wiley.com/doi/10.1111/j.0032-3217.2003.00450.x/pdf

What happened in this particular case, as in any particular case, was in some respects peculiar unto itself. The problem of the Bloomfield Track had been well known and much discussed in the local community for a long time. Exaggerated claims and counter-claims had become entrenched, and unreflective public opinion polarized around them. In this circumstance, the effect of the information phase of deliberative processes was to brush away those highly polarized attitudes, dispel the myths and symbolic posturing on both sides that had come to dominate the debate, and liberate people to act upon their attitudes toward the protection of rainforest itself. The key point, from the perspective of ‘democratic deliberation within’, is that that happened in the earlier stages of deliberation – before the formal discussions (‘deliberations’, in the discursive sense) of the jury process ever began. The simple process of jurors seeing the site for themselves, focusing their minds on the issues and listening to what experts had to say did virtually all the work in changing jurors’ attitudes. Talking among themselves, as a jury, did very little of it. However, the same might happen in cases very different from this one. Suppose that instead of highly polarized symbolic attitudes, what we have at the outset is mass ignorance or mass apathy or non-attitudes. There again, people’s engaging with the issue – focusing on it, acquiring information about it, thinking hard about it – would be something that is likely to occur earlier rather than later in the deliberative process. And more to our point, it is something that is most likely to occur within individuals themselves or in informal interactions, well in advance of any formal, organized group discussion. There is much in the large literature on attitudes and the mechanisms by which they change to support that speculation.31 Consider, for example, the literature on ‘central’ versus ‘peripheral’ routes to the formation of attitudes. Before deliberation, individuals may not have given the issue much thought or bothered to engage in an extensive process of reflection.32 In such cases, positions may be arrived at via peripheral routes, taking cognitive shortcuts or arriving at ‘top of the head’ conclusions or even simply following the lead of others believed to hold similar attitudes or values (Lupia, 1994). These shorthand approaches involve the use of available cues such as ‘expertness’ or ‘attractiveness’ (Petty and Cacioppo, 1986) – not deliberation in the internal-reflective sense we have described. Where peripheral shortcuts are employed, there may be inconsistencies in logic and the formation of positions, based on partial information or incomplete information processing. In contrast, ‘central’ routes to the development of attitudes involve the application of more deliberate effort to the matter at hand, in a way that is more akin to the internal-reflective deliberative ideal. Importantly for our thesis, there is nothing intrinsic to the ‘central’ route that requires group deliberation. Research in this area stresses instead the importance simply of ‘sufficient impetus’ for engaging in deliberation, such as when an individual is stimulated by personal involvement in the issue.33 The same is true of ‘on-line’ versus ‘memory-based’ processes of attitude change.34 The suggestion here is that we lead our ordinary lives largely on autopilot, doing routine things in routine ways without much thought or reflection. When we come across something ‘new’, we update our routines – our ‘running’ beliefs and pro cedures, attitudes and evaluations – accordingly. But having updated, we then drop the impetus for the update into deep-stored ‘memory’. A consequence of this procedure is that, when asked in the ordinary course of events ‘what we believe’ or ‘what attitude we take’ toward something, we easily retrieve what we think but we cannot so easily retrieve the reasons why. That more fully reasoned assessment – the sort of thing we have been calling internal-reflective deliberation – requires us to call up reasons from stored memory rather than just consulting our running on-line ‘summary judgments’. Crucially for our present discussion, once again, what prompts that shift from online to more deeply reflective deliberation is not necessarily interpersonal discussion. The impetus for fixing one’s attention on a topic, and retrieving reasons from stored memory, might come from any of a number sources: group discussion is only one. And again, even in the context of a group discussion, this shift from ‘online’ to ‘memory-based’ processing is likely to occur earlier rather than later in the process, often before the formal discussion ever begins. All this is simply to say that, on a great many models and in a great many different sorts of settings, it seems likely that elements of the pre-discursive process are likely to prove crucial to the shaping and reshaping of people’s attitudes in a citizens’ jury-style process. The initial processes of focusing attention on a topic, providing information about it and inviting people to think hard about it is likely to provide a strong impetus to internal-reflective deliberation, altering not just the information people have about the issue but also the way people process that information and hence (perhaps) what they think about the issue. What happens once people have shifted into this more internal-reflective mode is, obviously, an open question. Maybe people would then come to an easy consensus, as they did in their attitudes toward the Daintree rainforest.35 Or maybe people would come to divergent conclusions; and they then may (or may not) be open to argument and counter-argument, with talk actually changing minds. Our claim is not that group discussion will always matter as little as it did in our citizens’ jury.36 Our claim is instead merely that the earliest steps in the jury process – the sheer focusing of attention on the issue at hand and acquiring more information about it, and the internal-reflective deliberation that that prompts – will invariably matter more than deliberative democrats of a more discursive stripe would have us believe. However much or little difference formal group discussions might make, on any given occasion, the pre-discursive phases of the jury process will invariably have a considerable impact on changing the way jurors approach an issue. From Citizens’ Juries to Ordinary Mass Politics? In a citizens’ jury sort of setting, then, it seems that informal, pre-group deliberation – ‘deliberation within’ – will inevitably do much of the work that deliberative democrats ordinarily want to attribute to the more formal discursive processes. What are the preconditions for that happening? To what extent, in that sense, can findings about citizens’ juries be extended to other larger or less well-ordered deliberative settings? Even in citizens’ juries, deliberation will work only if people are attentive, open and willing to change their minds as appropriate. So, too, in mass politics. In citizens’ juries the need to participate (or **the anticipation of participating) in formally organized group discussions might be the ‘prompt’ that evokes those attributes**. But there might be many other possible ‘prompts’ that can be found in less formally structured mass-political settings. Here are a few ways citizens’ juries (and all cognate micro-deliberative processes)37 might be different from mass politics, and in which lessons drawn from that experience might not therefore carry over to ordinary politics: • A citizens’ jury concentrates people’s minds on a single issue. Ordinary politics involve many issues at once. • A citizens’ jury is often supplied a background briefing that has been agreed by all stakeholders (Smith and Wales, 2000, p. 58). In ordinary mass politics, there is rarely any equivalent common ground on which debates are conducted. • A citizens’ jury separates the process of acquiring information from that of discussing the issues. In ordinary mass politics, those processes are invariably intertwined. • A citizens’ jury is provided with a set of experts. They can be questioned, debated or discounted. But there is a strictly limited set of ‘competing experts’ on the same subject. In ordinary mass politics, claims and sources of expertise often seem virtually limitless, allowing for much greater ‘selective perception’. • Participating in something called a ‘citizens’ jury’ evokes certain very particular norms: norms concerning the ‘impartiality’ appropriate to jurors; norms concerning the ‘common good’ orientation appropriate to people in their capacity as citizens.38 There is a very different ethos at work in ordinary mass politics, which are typically driven by flagrantly partisan appeals to sectional interest (or utter disinterest and voter apathy). • In a citizens’ jury, **we think and listen in anticipation of the discussion phase, knowing that we soon will have to defend our views in a discursive setting where they will be probed intensively**.39 In ordinary mass-political settings, there is no such incentive for paying attention. It is perfectly true that citizens’ juries are ‘special’ in all those ways. But if being special in all those ways makes for a better – more ‘reflective’, more ‘deliberative’ – political process, then those are design features that we ought try to mimic as best we can in ordinary mass politics as well. There are various ways that that might be done. Briefing books might be prepared by sponsors of American presidential debates (the League of Women Voters, and such like) in consultation with the stakeholders involved. Agreed panels of experts might be questioned on prime-time television. Issues might be sequenced for debate and resolution, to avoid too much competition for people’s time and attention. Variations on the Ackerman and Fishkin (2002) proposal for a ‘deliberation day’ before every election might be generalized, with a day every few months being given over to small meetings in local schools to discuss public issues. All that is pretty visionary, perhaps. And (although it is clearly beyond the scope of the present paper to explore them in depth) there are doubtless many other more-or-less visionary ways of introducing into real-world politics analogues of the elements that induce citizens’ jurors to practice ‘democratic deliberation within’, even before the jury discussion gets underway. Here, we have to content ourselves with identifying those features that need to be replicated in real-world politics in order to achieve that goal – and with the ‘possibility theorem’ that is established by the fact that (as sketched immediately above) there is at least one possible way of doing that for each of those key features.

#### Third is Dogmatism – Most problems are not black and white but have complex, uncertain interactions. By declaring that \_\_\_\_\_ is always bad, they prevent us from understanding the nuances of an incredibly important and complex issue. This is the epitome of dogmatism

Keller, et. al,– Asst. professor School of Social Service Administration U. of Chicago - 2001

(Thomas E., James K., and Tracly K., Asst. professor School of Social Service Administration U. of Chicago, professor of Social Work, and doctoral student School of Social Work, “Student debates in policy courses: promoting policy practice skills and knowledge through active learning,” Journal of Social Work Education, Spr/Summer 2001, EBSCOhost)

John Dewey, the philosopher and educational reformer, suggested that the initial advance in the development of reflective thought occurs in the transition from holding fixed, static ideas to an attitude of doubt and questioning engendered by exposure to alternative views in social discourse (Baker, 1955, pp. 36-40). Doubt, confusion, and conflict resulting from discussion of diverse perspectives "force comparison, selection, and reformulation of ideas and meanings" (Baker, 1955, p. 45). Subsequent educational theorists have contended that learning requires openness to divergent ideas in combination with the ability to synthesize disparate views into a purposeful resolution (Kolb, 1984; Perry, 1970). On the one hand, clinging to the certainty of one's beliefs risks dogmatism, rigidity, and the inability to learn from new experiences. On the other hand, if one's opinion is altered by every new experience, the result is insecurity, paralysis, and the inability to take effective action. The educator's role is to help students develop the capacity to incorporate new and sometimes conflicting ideas and experiences into a coherent cognitive framework. Kolb suggests that, "if the education process begins by bringing out the learner's beliefs and theories, examining and testing them, and then integrating the new, more refined ideas in the person's belief systems, the learning process will be facilitated" (p. 28).

The authors believe that involving students in substantive debates challenges them to learn and grow in the fashion described by Dewey and Kolb. Participation in a debate stimulates clarification and critical evaluation of the evidence, logic, and values underlying one's own policy position. In addition, to debate effectively students must understand and accurately evaluate the opposing perspective. The ensuing tension between two distinct but legitimate views is designed to yield a reevaluation and reconstruction of knowledge and beliefs pertaining to the issue.

#### Our method solves – Even if the resolution is wrong, having a devil’s advocate in deliberation is vitally important to critical thinking skills and avoiding groupthink

Hugo Mercier and Hélène Landemore- 2011

(Philosophy, Politics and Economics prof @ U of Penn, Poli Sci prof @ Yale), Reasoning is for arguing: Understanding the successes and failures of deliberation, Political Psychology, http://sites.google.com/site/hugomercier/publications

Reasoning can function outside of its normal conditions when it is used purely internally. But it is not enough for reasoning to be done in public to achieve good results. And indeed the problems of individual reasoning highlighted above, such as polarization and overconfidence, can also be found in group reasoning (Janis, 1982; Stasser & Titus, 1985; Sunstein, 2002). Polarization and overconfidence happen because not all group discussion is deliberative. According to some definitions of deliberation, including the one used in this paper, reasoning has to be applied to the same thread of argument *from different opinions* for deliberation to occur. As a consequence, “If the participants are mostly like-minded or hold the same views before they enter into the discussion, they are not situated in the circumstances of deliberation.” (Thompson, 2008: 502). We will presently review evidence showing that the absence or the silencing of dissent is a quasi-necessary condition for polarization or overconfidence to occur in groups. Group polarization has received substantial empirical support. 11 So much support in fact that Sunstein has granted group polarization the status of law (Sunstein, 2002). There is however an important caveat: group polarization will mostly happen when people share an opinion to begin with. In defense of his claim, Sunstein reviews an impressive number of empirical studies showing that many groups tend to form more extreme opinions following discussion. The examples he uses, however, offer as convincing an illustration of group polarization than of the necessity of having group members that share similar beliefs at the outset for polarization to happen (e.g. Sunstein, 2002: 178). Likewise, in his review of the group polarization literature, Baron notes that “The crucial antecedent condition for group polarization to occur is the presence of a likeminded group; i.e. individuals who share a preference for one side of the issue.” (Baron, 2005). Accordingly, when groups do not share an opinion, they tend to depolarize. This has been shown in several experiments in the laboratory (e.g. Kogan & Wallach, 1966; Vinokur & Burnstein, 1978). Likewise, studies of deliberation about political or legal issues report that many groups do not polarize (Kaplan & Miller, 1987; Luskin, Fishkin, & Hahn, 2007; Luskin et al., 2002; Luskin, Iyengar, & Fishkin, 2004; Mendelberg & Karpowitz, 2000). On the contrary, some groups show a homogenization of their attitude (they depolarize) (Luskin et al., 2007; Luskin et al., 2002). The contrasting effect of discussions with a supportive versus dissenting audience is transparent in the results reported by Hansen ( 2003 reported by Fishkin & Luskin, 2005). Participants had been exposed to new information about a political issue. When they discussed it with their family and friends, they learned more facts supporting their initial position. On the other hand, during the deliberative weekend—and the exposition to other opinions that took place—they learned more of the facts supporting the view they disagreed with. The present theory, far from being contradicted by the observation that groups of likeminded people reasoning together tend to polarize, can in fact account straightforwardly for this observation. When people are engaged in a genuine deliberation, the confirmation bias present in each individual’s reasoning is checked, compensated by the confirmation bias of individuals who defend another opinion. When no other opinion is present (or expressed, or listened to), people will be disinclined to use reasoning to critically examine the arguments put forward by other discussants, since they share their opinion. Instead, they will use reasoning to strengthen these arguments or find other arguments supporting the same opinion. In most cases the reasons each individual has for holding the same opinion will be partially non-overlapping. Each participant will then be exposed to new reasons supporting the common opinion, reasons that she is unlikely to criticize. It is then only to be expected that group members should strengthen their support for the common opinion in light of these new arguments. In fact, groups of like-minded people should have little endogenous motivation to start reasoning together: what is the point of arguing with people we agree with? In most cases, such groups are lead to argue because of some external constraint. These constraints can be more or less artificial—a psychologist telling participants to deliberate or a judge asking a jury for a well supported verdict—but they have to be factored in the explanation of the phenomenon. 4. Conclusion: a situational approach to improving reasoning We have argued that reasoning should not be evaluated primarily, if at all, as a device that helps us generate knowledge and make better decisions through private reflection. Reasoning, in fact, does not do those things very well. Instead, we rely on the hypothesis that the function of reasoning is to find and evaluate arguments in deliberative contexts. This evolutionary hypothesis explains why, when reasoning is used in its normal conditions—in a deliberation—it can be expected to lead to better outcomes, consistently allowing deliberating groups to reach epistemically superior outcomes and improve their epistemic status. Moreover, seeing reasoning as an argumentative device also provides a straightforward account of the otherwise puzzling confirmation bias—the tendency to search for arguments that favor our opinion. The confirmation bias, in turn, generates most of the problems people face when they reason in abnormal conditions— when they are not deliberating. This will happen to people who reason alone while failing to entertain other opinions in a private deliberation and to groups in which one opinion is so dominant as to make all others opinions—if they are even present—unable to voice arguments. In both cases, the confirmation bias will go unchecked and create polarization and overconfidence. We believe that the argumentative theory offers a good explanation of the most salient facts about private and public reasoning. This explanation is meant to supplement, rather than replace, existing psychological theories by providing both an answer to the why-questions and a coherent integrative framework for many previously disparate findings. The present article was mostly aimed at comparing deliberative vs. non-deliberative situations, but the theory could also be used to make finer grained predictions within deliberative situations. It is important to stress that the theory used as the backbone for the article is a theory of reasoning. The theory can only make predictions about reasoning, and not about the various other psychological mechanisms that impact the outcome of group discussion. We did not aim at providing a general theory of group processes that could account for all the results in this domain. But it is our contention that the best way to reach this end is by investigating the relevant psychological mechanisms and their interaction. For these reasons, the present article should only be considered a first step towards more fined grained predictions of when and why deliberation is efficient. Turning now to the consequences of the present theory, we can note first that our emphasis on the efficiency of diverse groups sits well with another recent a priori account of group competence. According to Hong and Page’s Diversity Trumps Ability Theorem for example, under certain plausible conditions, a diverse sample of moderately competent individuals will outperform a group of the most competent individuals (Hong & Page, 2004). Specifically, what explains the superiority of some groups of average people over smaller groups of experts is the fact that cognitive diversity (roughly, the ability to interpret the world differently) can be more crucial to group competence than individual ability (Page, 2007). That argument has been carried over from groups of problem-solvers in business and practical matters to democratically deliberating groups in politics (e.g., Anderson, 2006; Author, 2007, In press). At the practical level, the present theory potentially has important implications. Given that individual reasoning works best when confronted to different opinions, the present theory supports the improvement of the presence or expression of dissenting opinions in deliberative settings. Evidently, many people, in the field of deliberative democracy or elsewhere, are also advocating such changes. While these common sense suggestions have been made in the past (e.g., Bohman,

 2007; Sunstein, 2003, 2006), the present theory provides additional arguments for them. It also explains why approaches focusing on individual rather than collective reasoning are not likely to be successful. Specifically tailored practical suggestions can also be made by using departures from the normal conditions of reasoning as diagnostic tools. Thus, different departures will entail different solutions. Accountability—having to defends one’s opinion in front of an audience—can be used to bring individual reasoners closer to a situation of private deliberation. The use of different aggregation mechanisms could help identify the risk of deliberation among like-minded people. For example, before a group launches a discussion, a preliminary vote or poll could establish the extent to which different opinions are represented. If this procedure shows that people agree on the issue at hand, then skipping the discussion may save the group some efforts and reduce the risk of polarization. Alternatively, a **devil’s advocate** could be introduced in the group to defend an alternative opinion (e.g. Schweiger, Sandberg, & Ragan, 1986).

#### Fourth is Policy Education

#### A focus on policy is necessary to learn the pragmatic details of powerful institutions – acting without this knowledge is doomed to fail in the face of policy professionals who make the decisions that actually affect outcomes

McClean, Adjunct Professor of Philosophy at Molloy College in New York, 2001

(David E., “The Cultural Left and the Limits of Social Hope”, Conference of the Society for the Advancement of American Philosophy, http://www.americanphilosophy.org/archives/past\_conference\_programs/pc2001/)

Or we might take Foucault who, at best, has provided us with what may reasonably be described as a very long and eccentric footnote to Nietzsche (I have once been accused, by a Foucaltian true believer, of "gelding" Foucault with other similar remarks). Foucault, who has provided the Left of the late 1960s through the present with such notions as "governmentality," "Limit," "archeology," "discourse" "power" and "ethics," creating or redefining their meanings, has made it overabundantly clear that all of our moralities and practices are the successors of previous ones which derive from certain configurations of savoir and connaisance arising from or created by, respectively, the discourses of the various scientific schools. But I have not yet found in anything Foucault wrote or said how such observations may be translated into a political movement or hammered into a political document or theory (let alone public policies) that can be justified or founded on more than an arbitrary aesthetic experimentalism. In fact, Foucault would have shuddered if any one ever did, since he thought that anything as grand as a movement went far beyond what he thought appropriate. This leads me to mildly rehabilitate Habermas, for at least he has been useful in exposing Foucault's shortcomings in this regard, just as he has been useful in exposing the shortcomings of others enamored with the abstractions of various Marxian-Freudian social critiques. Yet for some reason, at least partially explicated in Richard Rorty's Achieving Our Country, a book that I think is long overdue, leftist critics continue to cite and refer to the eccentric and often a priori ruminations of people like those just mentioned, and a litany of others including Derrida, Deleuze, Lyotard, Jameson, and Lacan, who are to me hugely more irrelevant than Habermas in their narrative attempts to suggest policy prescriptions (when they actually do suggest them) aimed at curing the ills of homelessness, poverty, market greed, national belligerence and racism. I would like to suggest that it is time for American social critics who are enamored with this group, those who actually want to be relevant, to recognize that they have a disease, and a disease regarding which I myself must remember to stay faithful to my own twelve step program of recovery. The disease is the need for elaborate theoretical "remedies" wrapped in neological and multi-syllabic jargon. These elaborate theoretical remedies are more "interesting," to be sure, than the pragmatically settled questions about what shape democracy should take in various contexts, or whether private property should be protected by the state, or regarding our basic human nature (described, if not defined (heaven forbid!), in such statements as "We don't like to starve" and "We like to speak our minds without fear of death" and "We like to keep our children safe from poverty"). As Rorty puts it, "When one of today's academic leftists says that some topic has been 'inadequately theorized,' you can be pretty certain that he or she is going to drag in either philosophy of language, or Lacanian psychoanalysis, or some neo-Marxist version of economic determinism. . . . These futile attempts to philosophize one's way into political relevance are a symptom of what happens when a Left retreats from activism and adopts a spectatorial approach to the problems of its country. Disengagement from practice produces theoretical hallucinations"(italics mine).(1) Or as John Dewey put it in his The Need for a Recovery of Philosophy, "I believe that philosophy in America will be lost between chewing a historical cud long since reduced to woody fiber, or an apologetics for lost causes, . . . . or a scholastic, schematic formalism, unless it can somehow bring to consciousness America's own needs and its own implicit principle of successful action." Those who suffer or have suffered from this disease Rorty refers to as the Cultural Left, which left is juxtaposed to the Political Left that Rorty prefers and prefers for good reason. Another attribute of the Cultural Left is that its members fancy themselves pure culture critics who view the successes of America and the West, rather than some of the barbarous methods for achieving those successes, as mostly evil, and who view anything like national pride as equally evil even when that pride is tempered with the knowledge and admission of the nation's shortcomings. In other words, the Cultural Left, in this country, too often dismiss American society as beyond reform and redemption. And Rorty correctly argues that this is a disastrous conclusion, i.e. disastrous for the Cultural Left. I think it may also be disastrous for our social hopes, as I will explain. Leftist American culture critics might put their considerable talents to better use if they bury some of their cynicism about America's social and political prospects and help forge public and political possibilities in a spirit of determination to, indeed, achieve our country - the country of Jefferson and King; the country of John Dewey and Malcom X; the country of Franklin Roosevelt and Bayard Rustin, and of the later George Wallace and the later Barry Goldwater. To invoke the words of King, and with reference to the American society, the time is always ripe to seize the opportunity to help create the "beloved community," one woven with the thread of agape into a conceptually single yet diverse tapestry that shoots for nothing less than a true intra-American cosmopolitan ethos, one wherein both same sex unions and faith-based initiatives will be able to be part of the same social reality, one wherein business interests and the university are not seen as belonging to two separate galaxies but as part of the same answer to the threat of social and ethical nihilism. We who fancy ourselves philosophers would do well to create from within ourselves and from within our ranks a new kind of public intellectual who has both a hungry theoretical mind and who is yet capable of seeing the need to move past high theory to other important questions that are less bedazzling and "interesting" but more important to the prospect of our flourishing - questions such as "How is it possible to develop a citizenry that cherishes a certain hexis, one which prizes the character of the Samaritan on the road to Jericho almost more than any other?" or "How can we square the political dogma that undergirds the fantasy of a missile defense system with the need to treat America as but one member in a community of nations under a "law of peoples?" The new public philosopher might seek to understand labor law and military and trade theory and doctrine as much as theories of surplus value; the logic of international markets and trade agreements as much as critiques of commodification, and the politics of complexity as much as the politics of power (all of which can still be done from our arm chairs.) This means going down deep into the guts of our quotidian social institutions, into the grimy pragmatic details where intellectuals are loathe to dwell but where the officers and bureaucrats of those institutions take difficult and often unpleasant, imperfect decisions that affect other peoples' lives, and it means making honest attempts to truly understand how those institutions actually function in the actual world before howling for their overthrow commences. This might help keep us from being slapped down in debates by true policy pros who actually know what they are talking about but who lack awareness of the dogmatic assumptions from which they proceed, and who have not yet found a good reason to listen to jargon-riddled lectures from philosophers and culture critics with their snobish disrespect for the so-called "managerial class."

#### The only way to reform the energy system is for critical scholars to learn the technical language and bureaucratic regulations of energy policy – essential to address growing environmental and geopolitical challenges of energy policy

Loren Lutzenhiser – assistant professor of sociology @ Washington State University – 1994, Energy and Interdisciplinary Environmental Science, The American Sociologist, Vol. 25, No. 1, Natural Resources and the Environment andSociology (Spring, 1994), pp. 58-79, jstor

Why is the Sociology of Energy Important to Environmental Policy and Research? Despite these limitations, other disciplines generally offer weaker accounts of the human role in energy production and consumption. In fact, efforts by physics, engineering and economics derived from the study of macro-level processes often mislead analysis by misrepresenting the micro-level social processes that control energy flows and shape socioenvironmental systems—processes about which sociology has a good deal to say (Lutzenhiser, 1993). Although the efficiency of energy use has improved in the United States over the past 20 years—reversing a centuries-long trend of increasing energy consumption (Morrison, 1992), neither market nor policy interventions have been particularly successful in reducing energy flows to anywhere near the theoretical minima that energy analysts estimate can maintain quality of life (Cherfas, 1991). One important contribution of sociology, then, lies in its ability to investigate the micro-social processes that promote consumption and constrain changes in efficiency—a value repeatedly stressed by social scientists and sympathetic analysts working in and around the energy system (Farhar, 1991; Schipper, 1991; Lovins, 1992; Lutzenhiser, 1992a; Stern, 1986,1992a). It is also clear that macro-social processes involving the geopolitics of energy, global energy system-based pollution, and the energy technology dependencies of advanced societies will grow in importance in coming decades. A few relevant sociological analyses in this area have recently appeared (e.g., Dunlap, Kraft and Rosa, 1993, Hackett and Lutzenhiser, 1991, Lutzenhiser and Hackett, 1993, Short and Clark, 1992) as have sociological contributions concerning global environmental change (e.g., see B?ttel and Taylor, 1992; Schnaiberg, 1991; Dunlap, Lutzenhiser and Rosa, 1994; and Dunlap, Gallup and Gallup, 1993). But this literature represents a very small part of a rapidly growing body of research on large-scale environmental processes and problems—many rooted in the energy system. If sociology is so relevant, why does it play such a minor part? Because the discipline has defined the analysis of the energy and environmental bases of society as marginal to the sociological enterprise, and because the perspectives and projects of the environmental sciences have effectively marginalized the social in their analyses. External Constraints: Nonsocial Models Dominate, Marginalizing Sociological Perspectives Nonsocial disciplines have historical precedence in energy analysis, having defined the field and organized large-scale, energy-environment research pro grams before sociology arrived on the scene in the 1970s. The dominance of these disciplines, and their continued containment of the social is accomplished through distinctly nonsocial paradigms and a complex of institutional supports. In this section, I review the most widely used energy-environment models, and examine the ways in which their focus upon technical, economic and environmental variables overlooks and distorts macro-social processes and micro-social behav iors.9 I discuss their limits and empirical failures, as well as efforts to bring social institutions and human agency into energy-environment analysis. This is most often accomplished via the economic and psychological models preferred by natural scientists and engineers?although such amendments have their own empirical problems. Sociological improvements to existing paradigms are also discussed, along with several multidisciplinary approaches that seem to offer avenues of cooperation between the social and technical sciences. Global Ecologies: Big Nature and Little Humans At the most macroscopic level, energy-environment analysis involves models that are earth-focussed and nature-based. They concern geological (plate tec tonic, volcanism), biological (photosynthesis, ecosystem dynamics), and climatic processes (atmosphere-ocean interactions). The fundamental focus of analysis is change in large nonhuman systems, often over long time intervals (NAS, 1990). For example, one important model of the earth system focuses on the carbo? cycle ?a phenomenon that involves the interaction of geological, biological and cli matic processes and is of considerable importance in evaluating the consequences of global warming caused by increased carbon dioxide (C02) levels in the at mosphere. Treating global carbon flow as an input-output problem, a "sources and sinks" model (NAS 1991) can be used to inventory the release of carbon into the atmosphere (primarily from natural sources) and its subsequent removal (prima rily through the natural "sequestering" of carbon in sinks such as plant and animal bodies, tropical forests and ocean plankton). Human carbon releases (from industrial combustion, power plants, forest burning, etc.) are of crucial concern, but these are generally small in comparison to the volume of the atmosphere itself and the scale of naturally occurring contributions and withdrawals.10 Human atmospheric contributions work at the margins of large natural systems?which is one of the reasons that some controversy surrounds the importance of human effects on global warming. In "sources and sinks" and other global-scale environ mental models, human action does its work by amplifying and dampening the effects of larger natural processes. And despite the natural science consensus that these "anthropogenic" sources of environmental change are of the most serious sort, the bulk of scientific interest, funding and action is in the study of natural systems. In global warming research, for example, efforts are underway to produce more sophisticated models of the natural workings of the carbon cycle?earth system simulations that will employ several generations of natural scientists and engineers and will require the development of new generations of super com Lutzenhiser 63 ?ters (Kerr, 1990). In the natural science community, there is little interest in launching investigations of the human role in the energy-environment dynamic on anywhere near that scale. Even among those environmental advocates who have been historically most concerned about human effects on the earth system (e.g., Barry Commoner, Paul Ehrlich, Lester Brown), human action is painted in broad strokes and stereotyped in concepts such as "affluence," "consumerism," "technology," and "population"?obviously important clusters of variables and ones that are familiar to sociologists (Dunlap, Lutzenhiser and Rosa, 1994), but underdeveloped and in need of considerable elaboration before they can use fully contribute to debates about environmental change. While we should applaud the calls to action in response to anthropogenic change that are now emanating from the natural science community, it is clear that the participation of the social sciences has been minimal in their deliberations. The social sciences certainly bear some of the responsibility for this situation (discussed below), but they have hardly single-handedly created the institutionalized status ordering of the sciences. A quick reading of the list of 320 "prominent signatories to the world scientists' warning to humanity" (Union of Concerned Scientists, 1993) finds only seven social scientists?five economists and two geographers. Regional Models: Bringing Machines Into Natural Systems At subglobal geographies, a clearer focus on societal factors might be expected. The pollution and resource consumption impacts of industrial production, power generation, transportation systems, and dispersed energy use are most visible, for example, at the regional (nation, province or state, bioregion, watershed) scale, where human causes of environmental change can readily be seen to derive from the operations of complex sociotechnical systems. This is a topic about which sociology should have a good deal to say. But sociological models have not been applied in the environmental analysis of regional systems, while a number of engineering-based approaches have. An intriguing "industrial me tabolism" metaphor (Ayers, 1989), for example, is promoted by the National Academy of Engineering (NAE, 1989) as a device for depicting the flows of energy and materials within ecosystems. The model also illustrates the facility with which the social can be excluded through selective focus on the technical elements of regional systems. The "industrial organism" invoked in the model turns out to be composed entirely of technical elements (hardware, energy, materials, pollutants) and its "metabolism" interacts with the environment in ways that do not explicitly involve human control or consumption. When used as a descriptive tool for material flow accounting, the model clearly does useful work (Stigliani and Anderberg, 1991)- And recent discussions of regional "indus trial ecologies" do make reference to organizational learning, institutional con straints, culture and values (Thomas Dietz, personal communication, 1993). But, to date, these discussions seem to have done little to integrate the efforts of students of technology, environment and society in the analysis of regional systems. ergy Plows: Abstract Relations and Aggregate Effects Other models of society-environment dynamics focus more narrowly on en ergy flows. Most tend to operate at large geographical (societal or regional) scales, at which production, consumption, energy losses, and pollution, are analyzed in aggregate and abstract terms. For example, those models may focus on the relative energy contributions of various fuels (coal, petroleum, natural gas), on conversion technologies (hydro, thermal and nuclear electric generation), or on consumption in various (industrial, commercial, transportation, residential) "sec tors" of the society (e.g., see U.S. Department of Energy, 1993). Here too, the social role in consumption and the social organization of energy production, are subsumed and lost in aggregate flows of energy as it passes through various phases of conversion and distribution. Some systematic efforts have been made to better account for the shape of the present system and to predict future system changes (e.g, in fuels mix, technologies and consumption levels). These are embodied in various govern ment, corporate and academic policy models that take into account prices and changing energy supplies in predicting energy use. In these models, however, social processes of technical innovation and consumption behavior are seen as determined wholly by changing energy costs?which are believed to be set rather mechanically by markets for limited fuels (Starr, 1992). All social relations in these models are macro-economic, and human actions required to maintain or change the energy system are assumed to derive from the economic motivations of individuals and firms. The more likely socioeconomic relations of modern societies (Granovetter, 1985; Etzioni, 1988, 1991) and the effects of noneconomic influences on technology development, fuel choice, and consumption patterns, are definitionally excluded from consideration. Understanding Energy Use: Focus on Hardware Variables and Human Constants Some energy analyses also focus more narrowly on trends in energy use and pollution?a side of the system that involves fairly obvious social influences on production and consumption. Complex models of changing energy demand? that specify in detail various end-uses of energy?are widely used by energy regulatory agencies and utility companies (CEC, 1991; DOE, 1990). They too manage to sharply limit consideration of the social. In their "disaggregation" of household energy consumption, for example, these models additively combine estimates of "typical" energy flows through water heaters, furnaces, refrigera tors, televisions, stoves, washers, dryers, etc., to build up a picture of the total energy demanded by "stocks" of housing. Human occupants are subsumed by the built environment, their variable social behavior being embedded in the consumption averages assigned to various types of machines and houses. The basic unit in the analysis of human-object "artifact ensembles" (Bijker, 1993) is taken to be the physical object, while human behaviors required to activate objects and induce energy flows are assumed to be homogeneous. These models make the absurdly simple assumption that all humans are alike?an assumption challenged by a number of empirical studies that suggest that energy use behavior and consumption via appliances and buildings is actually highly variable and socially structured (Lutzenhiser, 1993). To date, however, this evidence has had little effect upon the specification or use of these policy models. Highly detailed models of this sort have also been developed to study "build ing performance" (e.g., the U.S. Department of Energy's DOE2 model, developed by Lawrence Berkeley Laboratory). These models provide micro-physical simula tions of the interactions of single buildings and their environments. Here too, human occupants have a ghostly status, being embedded in average appliance consumption estimates and perhaps, in a very detailed modelling, contributing heat to the system from metabolism and their use of small appliances and lighting. Humans are only physical objects in these micro-modelling efforts, although, to the extent possible, actors and action are banned from both simulated and ex perimental research on "building" energy use. Having eliminated social action, these models, despite their physical detail, do not fare well in empirical tests (Vine, et al., 1982).11 In forecasting the future, both housing stock and building-based models use engineering assumptions about likely changes in technology, along with esti mates of population growth and future energy prices, to estimate the changing energy use patterns from which further estimates of pollution and environmental impacts may be derived. Such models are widely used as guides for policy and regulation. The only social science influence in these efforts is from neoclassical economics; for example, in assumptions that choices to produce more efficient technologies or buildings and the decisions of consumers to purchase them are determined by self-interested economic calculation. Limited Efforts to Bring People Back In If energy flows were determined exclusively by weather, buildings and ma chines, and if societal-level energy and environmental impacts could be accurately predicted in aggregate terms, then sociologists would have little quarrel with these models. We might like them to be more fully specified, since human groups, after all, control hardware, respond to the weather, and take action in the face of price changes. But more than disciplinary turf or theoretical symmetry is at stake. Not only do these models not perform well empirically, but there is substantial evidence that their errors can be traced directly to their failure to consider human behavior. Although social action has been paradigmatically excluded from energy analy sis except at the margins, a good deal of social science has been done at those margins?and the literature is fairly accessible to energy analysts. For example, studies of energy-using behavior and of empirical variations in energy use, as well as thoughtful critiques of the "energy user as rational economic actor" formulation, have been offered.12 Social psychologists and cognitive anthro pologists have been the strongest critics of economism and rationalism in this literature?arguing that actors' understandings (of energy, technology and available choice) differ considerably from engineering understandings of these matters, and that lay economic calculations are not, in reality, made as assumed by economists (Kempton and Montgomery, 1982; Kempton and Layne, 1988; Archer, et al., 1984; Stern, 1986). Alternative attitudes based psychological models (e.g., of consumer willing ness to make energy conserving changes in behavior and technology) have not performed well, however, with attitudes proving to be weak predictors of en ergy action (Olsen, 1981; Ester, 1985). Attempts to amend attitude models by considering "context factors" (e.g., price, weather and available technology? the stuff of physical models) have been more successful (Black, Stern and Elworth, 1985), leading to a call for the fundamental revision of psychological models to incorporate a wider range of social and physical context variables (Stern and Oskamp, 1987). An important weakness in this work lies in the fact that, as in economic formulations, the individual actor (albeit under the influence of social others) is the basic unit of analysis. While a focus on the individual has provided insights into choice, values and commitments as these bear on consumption and ulti mately upon environmental pollution, it also obscures the actions of social groups? families, households, kin networks, neighborhoods, communities, organizations, and cultures?and their consumption and conservation of energy. A focus on groups is not simply a plea for more sociologically oriented analysis. It also represents a call for a more human-ecological focus, following from the observations that social groups construct and occupy buildings, that economic choice and technology use are socially constrained and culturally accomplished and that collectively constructed lifestyles are fundamental in the patterning of consumption. Sociological work undertaken from this perspective has shown clear associations between social structure, energy use and pollution (Dillman, Rosa and Dillman, 1983; Lutzenhiser and Hackett, 1993). There are some indications of convergence between physical-technical, eco nomic, psychological and sociocultural models?since all offer selective but useful views of the ecology of energy-environment systems. A few efforts have been made, for example, to design and test mixed models (Cramer, 1985; Parti, Sebald and Won, 1986; Lutzenhiser and Hackett, 1993). But physical/economic models clearly predominate and their partisans show few signs of publicly acknowledg ing their weaknesses or expanding the range of variables taken into account (Lutzenhiser, 1992b). Calls for rapproachment have come from sociologists working within the energy research and policy establishment (Farhar, 1991) and efforts to bring social science theory and research to bear on large-scale environmental problems have proposed that energy studies be used as a model for other in terdisciplinary collaborations (Stern, 1992b). But to date these have had little discernible effect. Accommodation in Environmental Analysis: Human "Driving Forces" A well-supported "second environmental science" could indeed promote needed interdisciplinary and cross-paradigmatic research. But even so, it might lack the theoretical coherence desirable in a science of society-environment relations. One such theoretical orientation has been proposed by the National Academy of Sciences/National Research Council panel on the Human Dimensions of Global Environmental Change (NAS, 1992)?itself an interdisciplinary group. The panel was charged with inventorying knowledge of human-environment interactions and, although it reviewed a wide range of scholarship in environmental sociol ogy, only one sociologist served as a panel member. Rather than explicitly adopting a human-ecological or environmental sociological framework, the panel opted to classify human causes of environmental change in five broad categories of "driv ing forces," calling for studies of their collective environmental effects.13 These "forces" (". . . a complex of social, political, economic, technological and cul tural variables. . ." [NAS, 1992, p. 75]) include: population change, economic growth, technological change, political-economic institutions, and attitudes and beliefs. One can hardly dispute the relevance of any item on the list, but in combining dissimilar elements (i.e., psychological states, population trends and social institutions) the model seems more a loosely coupled collection of per spectives than a theoretical synthesis. This is hardly a fatal flaw in what is fundamentally a research agenda (in the construction of which the panel showed considerable breadth of vision). This sort of compromise theorizing is probably inevitable when "... attempting to convince social scientists why energy and environment are important and bio logical and physical scientists why social science has something to say" (Thomas Dietz, personal communication, 1993); and, it must be said that the driving forces model is fairly congenial with socioecological perspectives (Dunlap, Lutzenhiser and Rosa, 1994). But it should concern sociologists who are inter ested in a theoretical integration of the social, technical and ecological that the model awkwardly couples disembodied sociopolitical institutions and neoclassi cal economic markets with consumers (as psychological individuals), whose nature is rather uncritically taken to be pan-culturally acquisitive. Toward a Sociological Model A more fully social account would, for example, point to the fact that energy technology-environment systems may have more coherence than the driving forces model implies?being socially structured at the macro level and cultur ally generated at the micro level. The relative importance of micro and macro processes and their interrelations in the ecology of industrial societies are not well understood, and represent important areas for research?e.g., concerning the degree to which "demand" can possibly be autonomous of supply (Schnaiberg, 1991). Production priorities and their environmental impacts are certainly shaped by political economy, while consumption is importantly constituted in moral (cultural) action. A more sociological research program would frame the human dimensions of environmental change as a problem involving, for example, the behavior of organizational systems (fields, sets, networks, industries), and their interactions with class, race, gender, and consumption cultures. This approach would yield a critical whole-system model, while more limited physical, economic and psychological models of human-energy-environment systems take on a narrow focus and consensual tone that necessarily embody system maintenance interests. Competition and conflict are treated as exogenous in conventional models because they are not designed for human-environment system analysis, but are intended more to be used by competing social interests to generate particular images of the world in order to secute particular outcomes. The broader socialanalytic frame takes these models and their modellers, along with the social/ political relations in which they are embedded, as themselves integral elements of the sociotechnical systems implicated in environmental change. Institutional Context: The Energy Establishment and Limitations of Academic Sociology The Power and Insularity of the Energy System The institutional milieu that supports narrow and asocial definitions of the energy-environment problem is one dominated by large energy firms, an elaborate regulatory complex, and a highly scientized policy process. This is particularly true in the case of costly and hazardous energy technologies (e.g., nuclear fis sion, fusion, and radioactive waste disposal). The energy system is interwoven with a dense web of regulations, laws, engineering standards, and bureaucratic procedures, all of which are encoded in the same physical and economistic terms used in energy research. Taken together, they embody a paradigm concretized in technical language and legal instruments with strong inertial qualities. The paradigm derives from specialized academic disciplines, which are closely related to the energy system. These include energy economics, electrical, chemical, mechanical, civil, and environmental engineering, systems analysis and operations research. A network of corporate and university-based national laboratories conduct federally sponsored research guided by the physical-economic paradigm, and a number of specialized energy associations and energy-related branches of scientific societies regularly hold professional meetings, publish journals, and sponsor special conferences that support the paradigm. Some of these groups are even empowered to set formal standards for engineering and architectural designs. A wide array of consulting firms, specializing in paradigm-supporting training and evaluation, also operate in the orbits of energy firms, state agencies and the national laboratories. Social scientists hold a tiny fraction of the professional positions in the energy system, and their influence is sharply circumscribed. The sociological study of the energy system's self-understandings, paradigmatic limitations, environmental constructions, and difficulties in communicating across system boundaries offer numerous opportunities to extend sociologial theories of organizational change and the evolution of large-scale social sys tems – e.g., along the lines indicated by Stinchcombe (1990) and Luhmann (1989). It is also an area rich in possibilities for the newly expanding sociologies of technology, innovation and technical occupations. For example, studies of the evolution of the system as it faces serious environmental problems related to nuclear power and radioactive waste, fossil fuel depletion, alternative energy sources, and energy-efficiency can contribute insights to a number of areas of environmental sociology. In fact, the relative lack of sociological work in the area would also seem to make actors in the energy system potentially important consumers of social science research. The Disciplinary Limitations of Sociology But the energy system has been far from solicitous of sociological views, and sociology has been surprisingly reticent about energy studies. A call to arms by one of the discipline's most influential observers—Duncan (1978) in "Sociologists Should Reconsider Nuclear Energy"—was virtually ignored. While sociologists enjoyed funding and produced a number of useful energy studies at the height of the energy crisis, they shifted their attention elsewhere as energy prices fell. Opportunism? Not entirely. These researchers often fondly recall the interdisciplinary projects in which they were involved. Factors internal to the discipline played a significant role in this shift, including the low status of interdisciplinary publication, and the loss of legitimacy that followed from loss of funding. The disciplinary costs of pursuing interdisciplinary interests continue to be high. A steep learning curve is involved in such work, since at least some technical knowledge must be acquired for even modest studies of energy-environment systems. As an illustration, the social historian Thomas Hughes (1983), for example, found that without an understanding of the importance of "load factor" (a measure of system utilization) among early electrical system builders, he could not adequately account for the particular ways in which late, nineteenth-century electrical utilities engineered their expansions. Whether the object of inquiry might be the macro-political economy of nuclear power plant siting, or the micro-social relations of engineering design groups, a time-consuming mastery of technical vocabularies is required. Gaining the necessary scientific and technical background is hardly an insurmountable task (science writers do it, more and less well, all the time). But even so, a significant investment in an unfamiliar field is required, since this knowledge is rarely gained incidentally by sociologists. Our formal associations and informal orbits on campus tend to be segregated from those of natural scientists and engineers, and few efforts are generally made on either side to exchange views. Economists seem more willing to acquire at least a first approximation of other discipline's theories and then search for ways to bring economic models to bear on the problems that they find there. This segregation is mirrored in the directorate structure of the National Science Foundation, the division of labor among private foundations, and the organizational makeup of multidisciplinary scientific associations. As a result, institutions with social science capabilities are generally disconnected from those with environmental responsibility (NAS, 1992). The unwillingness to venture into unfamiliar territory is strong even when boundary-spanning projects are undertaken. For example, efforts to stimulate interdisciplinary socioenvironmental research through NSF's Human Dimensions of Global Change (HDGC) program—a three year-old initiative whose funding is equal to that of the entire NSF sociology program—have been met with little interest from sociology. Just as natural science approaches tend to exclude human behavior, so too do sociological perspectives tend to exclude the physical and environmental from their accounts of social change. Contemporary sociologists concerned with environment and technology continue a long struggle with an intellectual division of labor that has narrowly circumscribed the theoretical domain of the social. As Catton and Dunlap (1980) point out, the problem derives from efforts to carve out a unique subject matter for sociology?—a process that has resulted in core conceptions that miscast social action as somehow disconnected from the physical and natural systems within which action is necessarily embedded, and toward which action routinely refers. And just as traditional sociological self-understandings are uneasy with "technical" and "biological" topics, we can now add emergent interpretivist perspectives that see natural environments largely as social-constructions—nature as a potentially important social variable risks becoming mere nature as socially variable.14 The general lack of familiarity with the sociological relevance of energy-environment research is clearly reflected in disciplinary publication patterns. While opportunities to publish energy-related research in sociology journals certainly exist, they are finite and limited by both real and perceived audiences for the work. As a result, only a small number of energy-related papers have appeared in the sociological literature during the past 20 years, with very few in first-tier journals. Publishing opportunities in refereed energy and environmental journals are somewhat more numerous—and, in fact, work reported there is more likely to influence research and policy in those fields than are papers published in sociology journals. Publications in energy and environmental literatures are difficult for sociologists to access and evaluate, however, and tendencies toward parochialism can result in a devaluation of work published outside of sociology. As a practical matter, the active engagement of sociologists within environmental and technical domains is—perhaps unintendedly—discouraged, and one concrete result is that the generation of sociologists who pioneered sociological energy studies is rapidly thinning. The failure to sustain a critical mass of energy sociologists is due partly to historical coincidence. As the energy crisis disappeared from center stage and the turn to market forces was made, funding for research groups declined and the opportunity for academic influence in the energy system passed. The discipline still had a contribution to make, but sociologists concerned about tenure and promotion did not persist since, in the words of one informant "... it was clear that the discipline wasn't interested and we needed to worry about review." Those who were able to find positions within the energy system have, over time, had some influence on policy. But it is little wonder that graduate students who might otherwise be interested in the area recognize the stigma associated with anything that can be cast as "applied" research, and steer a prudent course away from interdisciplinary specialities. The result is a sharply limited lack of sociological human resources that might be deployed in energy-environment studies—despite the expressed needs and desires of concerned natural scientists and environmental advocates. Although the market may be changing in modest ways, few sociology departments have actively recruited faculty in the areas of environment and technology. Few Ph.D. programs have offered training in these areas, and only a handful of land-grant institutions have developed strong research and teaching programs in environmental sociology. The NAS panel on the Human Dimensions of Environmental Change considered in some detail these and other institutional limitations to basic research on human-environment interactions. They concluded that existing disciplinary reward structures were unlikely to support the needed expansion of environmental social science training and research, and recommended that special efforts be made by the NSF and other federal science agencies to target fellowships and research funding in support of the effort (NAS, 1992, pp. 223-234). Disciplinary Agendas in Research, Training and Institution Building The promotion of such policies and the use of their benefits, to an important degree, depends upon the initiative of the discipline. If it is desirable to more aggressively cultivate sociological studies of energy and the environment—and I think that it clearly is for both theoretical and societal reasons—then it is necessary to open up otherwise closed environmental, technical and social paradigms to better secure legitimacy in all quarters for this sort of work. Simply negotiating access for sociologists to multidisciplinary teams offers no guarantee of legitimacy, however, either with the collaborators or with mainstream sociology. Social perspectives are regularly accorded only token status in multi disciplinary projects—a good example might be international development work. Multidisciplinary funding programs often limit the social sciences to small "high risk" projects, and social science graduate students are often disadvantaged in fellowships with applicants from the natural sciences and economics.

## Case

### Energy Good

#### Expansion of solar power now

Kelly-Detwiler, 12/11 --- writes about energy technologies and policies (Peter, “Solar's Steady March: New Installation Figures Are Out,”

http://www.forbes.com/sites/peterdetwiler/2012/12/11/solars-steady-march/)

It seems that nearly weekly we hear more good news on the solar energy front. Today, the Solar Energy Industries Association and GTM Research released their Solar Market Insight Report for Q3 2012, with a summary of accomplishments year to date. The progress is impressive and would have been unimaginable just five years ago. Furthermore, the growth is expected to continue for the next several years, jumping from 3.2 GW in 2012 to 7.8 GW by 2015. Some highlights from the report:

 By the end of 2012, an estimated 3.2 gigawatts (GW – or 3,200 megawatts) of solar power will have been installed – an increase of 70% over last year.

 The multi-year pipeline for solar-scale programs is finally reaching fruition, with some very large projects coming on line.

 California, New Jersey, and Arizona are leading the charge.

 Solar costs have fallen by over 30% in the past two years.

One of the macro factors driving this expansion is the vast overcapacity currently affecting markets. It is estimated that panel manufacturing capacity currently outpaces demand by a factor of over two to one (70 GW to 31 GW). This lack of equilibrium cannot last forever and should result in more plant closures – especially since global demand is growing at 14%. It will be interesting to see what happens to prices once supply-demand equilibrium gets back in balance.

Another dynamic worth observing is that the markets are incentive-driven and highly balkanized. For example, New Jersey, with its perhaps overly exuberant rebates, is slowing down, as is Massachusetts. At the same time, other markets ramp up. Overall, though, the year-over-year increase has been remarkable.

 U.S. PV Installations by Market Segment, Q1 2010 to Q3 2012

One big force driving demand is the fact that 21 utility-scale projects – ranging in size from 300kW to 115 MW – were completed in Q3 of 2012. Looking at the pipeline going forward, these numbers will grow for another two years as projects in development move to completion. But once that “pig moves through the python,” the numbers are forecast to fall off significantly. There are just not that many new power purchase agreements (PPAs) being signed. These utility-scale projects have led all sectors in pricing improvements, but every sector has benefited over the past two years as panel prices fall while efficiencies in installation costs kick in.

Average Installed Price by Market Segment, Q1 2011 – Q3 2012

So what does the future look like? SEIA and GTM Research forecast continued aggressive growth for the foreseeable future. From a figure of 1.9 GW in 2011, the installed capacity is expected to increase four-fold in just five years. It is pretty unlikely that this trajectory can continue at that pace. However, even if it slows significantly, or levels out, that’s a good deal of new capacity.

PV Installation Forecast, 2010-2016E

At the same time, the advance of technology also continues. Just last week, San Jose-based Solar Junction announced a new world record conversion efficiency (verified by the National Renewable Energy Laboratory) of 44% for a production–ready photovoltaic solar cell. The company notes that it has an order for 5 MW of its product, and is commissioning a manufacturing facility that will ship product in early 2013.

Between the improved conversion efficiencies, manufacturing gains, decreased inverter costs and improvements in other balance of system (BOS) costs, there is still room for substantial price improvement. The US Department of Energy’s SunShot Initiative has a goal of making PV cost-competitive without incentives by reducing total PV costs by approximately 75% between 2010 and 2020.

With costs down an estimated 30% over two years, significant progress has already been made. Even in the absence of new technological gains, the experience of other countries suggest that the hoped-for Sunshot cost efficiencies may well be achievable. A comparison of US residential and commercial systems installed in 2011 vs German systems quoted (not perfectly comparable data, but helpful for analysis of trends), show big price differentials. Under 10 kW, the installed price per watt is $6.13 vs $3.40, a difference of $2.73 (or 45%). For systems between 10 and 100 kW, the delta narrows to $$2.52 (still 45%). For systems in excess of 100 kW, the figure decreases to $2.27 (or 47%).

All of the recently available data thus continues to point us in the same direction The march of solar energy is sustained, steady, and likely to make great strides in the years to come.

#### Solar solves grid failure HIGHLIGHT DOWN

Mendonça et al 9

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To penalize renewables for their variability or intermittency not only ignores how that variability can be mitigated, it also obscures equal amounts of variability inherent in conventional fossil fuel and nuclear resources. All electricity systems must respond to the complex interplay of constantly changing supply and demand. They are subject to unexpected failures and outages and influenced by a large number of planned and unplanned events. Daily load variances occur, as routine practices reinforce the effects of changing from day to night, such as turning lights on, raising indoor temperature when waking up, taking showers before breakfast, cooking in the dinner hour and washing dishes, or charging electric vehicles at night. Over the course of a week, energy use changes as the weekend approaches and, throughout the year, as seasonal differences in temperature and climate occur. While it is certainly true that the output from conventional power plants can be measured quite accurately, researchers from the Lawrence Berkeley National Laboratory and the American Council for an Energy-Efficient Economy noted that virtually ‘every other aspect of planning for and implementing that resource is riddled with uncertainty’ (Vine et al, 2007). Four types of uncertainty are most common: unexpected outages, variance in construction costs, variance in demand forecasts, and transmission and distribution vulnerability. And, perhaps surprisingly, renewable power plants address each of these types of variability better than conventional units: 1 Let us begin by discussing the unplanned outages for conventional units. The average coal plant operating on the market today is out of service 10– 15 per cent of the time (Sovacool, 2009). Looking at the performance of conventional generators in the US from 2000 to 2004, the North American Electric Reliability Corporation found that plants shut down for scheduled maintenance 6.5 per cent of the year and require unscheduled maintenance or experience forced outages another 6 per cent of the year. Their study noted that conventional output is guaranteed on average only 87.5 per cent of the time in the US, with a range of 79–92 per cent (NERC, 2005). To cope with the variability of conventional units, system operators must operate a 15 per cent reserve margin of extra capacity, much of which is continually fuelled and spinning ready for instant use. Nuclear plants are not much better. One survey of nuclear power plant operating performance for US, French, Belgian, German, Swedish and Swiss reactors found mean durations of continual operation from 35 to 88 days (Perin, 1998). In other words, the average plant only operated one to three months without some sort of unplanned outage event, half of which were related to equipment failure. Of all 132 nuclear power plants built in the US (only 52 per cent of the 253 originally planned), almost one-quarter (21 per cent) were permanently and prematurely closed due to reliability or cost problems, and 27 more have failed for a year or more at least once (Lovins et al, 2008). Even reliably operating nuclear plants must shut down 39 days every 17 months for refuelling and scheduled maintenance. They must also shut down during blackouts, and then take incredibly long times to restart. During the August 2003 blackout in the US, nine perfectly operating nuclear plants had to shut down and then took 12 days to restart. During the first three days, when they were most needed, their output was below 3 per cent (Lovins et al, 2008). Regions heavily dependent on a fleet of nuclear plants are at greater risk because drought or safety problems can close many units simultaneously. 2 Conventional plants are more prone to cost overruns and manufacturing glitches. These power plants are ‘lumpy systems’ in the sense that additions are made in large ‘lumps’ (such as 1000MW reactors). These facilities have long lead times, making them vulnerable to project delays, unforeseen events, cost overruns and project cancellations. Nuclear power plants in Canada, the US and Finland are a prime example here. In Canada, delays and cost overruns on nuclear power plants accounted for CA$15 billion of ‘stranded debt’ created by Ontario Hydro (Winfield et al, 2006). In the US, the actual construction cost for 75 nuclear power plants was quoted to be US$89.1 billion, but because of project delays and manufacturing errors, cost overruns ballooned to more than three times as much, at US$283.8 billion (US Congressional Budget Office, 2008). The Finnish nuclear power plant at Olkiluoto was expected to cost €3 billion. By now the costs have risen to at least €4.5 billion and the power plant which was to be completed by 2009 will not go online before mid-2012. 3 Gargantuan conventional plants, because they take longer to build, are also at greater risk of unexpected changes in electricity demand over long periods of time. We have a hard enough time predicting the weather or the outcome of political elections; imagine the difficulty of projecting how an entire sector will demand electricity five, ten, or even twenty years from now. In the 1970s and 1980s, excessively high forecasts of growth in demand for electricity led to overbuilding of generating plants and massive electric system cost overruns in many states. One infamous example was in Washington State, where the Washington Public Power Supply spent more than $5 billion partially constructing nuclear plants that were later abandoned when demand for electricity dropped. Between 1972 and 1984, more than $20 billion in construction payments flowed into 115 nuclear power plants worldwide that were subsequently abandoned by their sponsors because they were no longer needed (Cavanagh, 1986). 4 Both sets of large plants, fossil fuelled and nuclear, must rely on brittle transmission lines easily disrupted by lightning strikes, storms, squirrels and bullets. Given that more than 98 per cent of blackouts and power outages start on the grid, such centralization has grave risks for electricity reliability (Lovins et al, 2008). The renewable resources supported by FITs, ironically, respond better to each of these problems. Modern wind turbines and solar panels have a technical reliability above 97 per cent. Such high reliability is for one wind turbine or solar panel, so any amount of significant wind or solar power in an electricity system would never see all (hundreds of thousands of units) down at the same time. When individual units do rarely fail, they do so in smaller increments. The high technical reliability for wind and solar lowers the probability of unplanned outages and lessens the need for operational and capacity reserves (Jacobson and Masters, 2001). Since forced outages for conventional units range from 10 to 15 per cent, and the wind turbine failure rate is less than 3 per cent, the extent that wind replaces fossil fuels improves the reliability of the system by 7–12 per cent (and also reduces backup requirements by an equivalent amount). New inverter technology has the potential to enhance the reliability of solar even further, as it will enable systems to work when partially shaded. In terms of modularity, construction cost overruns, and rapid alterations in electricity demand, the quicker lead times for renewable power plants and small- scale units enables a more accurate response to load growth or reduction. Wind farms, geothermal power plants, and biomass plants often take between one and two years to construct, and if the units are available, solar panels can be installed in as little as a few months. Small-scale solar and wind units can be matched to serve almost any load, and medium- to commercial-scale wind turbines, bioelectric plants and geothermal stations can be installed in increments ranging from 1.5MW to 20MW. Such modularity minimizes the financial risk associated with borrowing hundreds of millions of dollars to finance plants for ten or more years before they start producing a single kWh of electricity, and it means electricity loads can be precisely matched. Finally, in terms of transmission and distribution vulnerability, the small-scale and distributed renewable power generators promoted by FITs can improve grid reliability, lessen the need to build expensive transmission infrastructure, reduce congestion, offer important ancillary services, and improve energy security through geographic diversification. Deploying distributed solar, biomass and small-scale wind units offers an effective alternative to constructing new transmission and distribution lines, transformers, local taps, feeders and switchgears, especially in congested areas or regions where the permitting of new transmission networks is difficult. The Pacific Gas and Electric Company, the largest investor-owned utility in California, built an entire power plant in 1993 to test the grid benefits of a 500kW distributed solar power plant. The utility found that the distributed solar plant improved voltage support, minimized power losses, lowered operating temperatures for transformers on the grid, and improved transmission capacity. The benefits were so large that the small-scale generator was twice as valuable as estimated, with projected benefits of $0.14–0.2/kWh (Wenger et al, 1994). This could be why the Institute of Electrical and Electronics Engineers in the US recently concluded that dispersed renewable resources such as wind can be managed not only through interconnection and integration without degrading the network, they can also contribute to improvements in system performance (Smith et al, 2007). THE RELIABILITY OF HYDRO, GEOTHERMAL, SOLAR THERMAL AND BIOMASS Commercial hydroelectric, geothermal, bioelectric and biogas power plants provide predictable, 24-hour base-load power in many parts of the world, including the US (where they satisfy more than 7 per cent of national electricity demand). Other countries, like Norway, rely entirely on these technologies. Equally, the latest solar thermal power plants can now provide reliable electricity as they operate in combination with molten salt and other large storage units. These power facilities provide reliable power without the need for backup. Many of these systems are subject to woeful underinvestment, yet both hydropower and geothermal plants could provide almost the entire world’s electricity by themselves if their technical potential was fully tapped. The world consumed about 17,000TWh of electricity in 2007, yet a comprehensive study undertaken by the International Energy Agency and others identified 14,370TWh of achievable remaining potential for hydroelectric facilities (International Hydropower Association, 2000) Similarly, the International Geothermal Association surveyed a collection of studies and concluded that 22,400TWh of geothermal power potential existed (Bertani, 2002). It is always good to remember that when we are talking about the types of technologies that FITs promote, we are not talking only about intermittent resources such as wind and solar PV. We are also talking about big and small hydroelectric dams, solar thermal and geothermal plants, and bioelectric stations (some combusting fuel and others harvesting methane from landfills) that have been proven through decades of experience to operate identically to coal, oil, natural gas and nuclear units. THE RELIABILITY OF INTERCONNECTED WIND AND SOLAR While wind and solar systems are more variable than their hydro, geothermal, solar thermal and biomass counterparts, interconnecting dispersed wind and solar units greatly improves their reliability. Electrical and power systems engineers have long held the principle that the larger a system becomes, the less reserve capacity it needs. Demand variations between individual consumers are mitigated by grid interconnection in exactly this manner and modern communication technology enables us to make this happen. When a single electricity consumer starts drawing more electricity than the system has allocated for each consumer, the strain on the system is insignificant because so many consumers are drawing from the grid that it is entirely likely another consumer will be drawing less to make up the difference (International Energy Agency, 2005). This ‘averaging’ works in a similar fashion on the supply side of the grid. Individual wind turbines and solar panels average each other out in electricity supply. When the wind is not blowing through one wind farm or the sun not shining on someone’s house, it is likely to be blowing harder or shining brighter near another. Therefore, the improvement of interconnection capacity between countries and regions is of special importance for renewable energy sources. Besides, modern, large-scale wind power plants are often remote-controlled by grid operators in order to increase or reduce electricity output according to demand (see Section 3.5). A large number of meteorological wind studies make this point forcefully. Scientists looking at a 3-year data set for Scandinavian countries from 2000 to 2002 noted that that longest duration in low wind speeds per year was 58 hours for Denmark, 19 hours for Finland and Sweden, and 9 hours for Norway. However, none of these four rare events occurred at the same time, meaning there were no totally calm periods for all four countries together (Gul and Stenzel, 2006, p173). A separate study looking at Denmark and Germany found that the maximum hourly swing in wind speeds over a distributed network of wind farms rarely exceeded 20 per cent and had a standard deviation of hourly swings of 3 per cent. The study calculated that the maximum measured change in output per minute for a massive 2400MW wind farm would be less than 6MW, or 0.25 per cent of its total output (Gul and Stenzel, 2006, p171). Similarly, hourly wind data collected over a 23-year period from 66 different locations in the UK found that low wind speed events affecting more than half the country were very rare. For less than 10 per cent of the total time were wind speeds below 4 metres per second at individual sites, and there was no single event over the entire 23 years where wind speeds were low throughout all of the locations (Olz et al, 2007, p30). The conclusions advanced by these scientific studies are only bolstered by real-world operating experience in the US, Germany, Canada and the EU. In the US, one study of utility experience with wind farms spread across locations in Minnesota, California, Wisconsin, New York, Oregon, Wyoming and Colorado found that greater penetration of wind plants helped grid operators handle major outages and contingencies elsewhere in the electricity network (DeMeo et al, 2005). Another assessment of 19 wind sites in the central US noted that almost all parameters from wind power improved as the number of interconnected sites increased, including standard deviations of array-average wind speed and wind power, reliability, and the need for energy storage or reserve capacity (Archer and Jacobson, 2007). A third study performed by General Electric for the Independent System Operator in New York investigated a 10 per cent wind penetration scenario in New York State, or the addition of about 3300MW of installed wind capacity on a 33,000MW peak-load system. When researchers posited that the wind capacity was located across 30 different sites, they found ‘no credible single contingency’ that led to a significant loss of generation. Because the system in New York was already designed to handle a loss of 1200MW due to the unreliability of conventional generators, it had more than enough resiliency to enable the incorporation of wind (Piwko et al, 2005). This could be why even though the US has more than 25,000MW of installed wind capacity (the largest absolute amount in the world), not a single conventional unit has been installed as a backup generator. In Germany, the hundreds of thousands of dispersed solar photovoltaic units do not overwhelm system operators nor do they need highly advanced grids. Using a transmission and distribution system similar to the US, Germany integrates 350,000 separate solar installations (90 per cent of which are on residences) to provide 3.5GW of peak capacity. The highly dispersed and distributed nature of this resource means that when the sun shines in one area it often cancels out cloudiness in others, making it easier to manage. The German Solar Industry Association believes that solar penetration could be ramped up ten times to 35GW without any inherent technical problems.3 Moreover, grid operators have proven that they can merely issue grid codes for the different voltage levels of the grid to increase network stability when needed. In Canada, a study in Ontario investigated the impact of 20 per cent wind penetration on its electricity grid. The assessment accounted for seasonal wind and load patterns, daily wind and load patterns, changing capacity value for delivering power during peak load, and geographic diversity. It used wind and load data for one year and concluded that the more wind that existed in the system and the more geographically dispersed it was, the more it reduced volatility, in some cases by up to 70 per cent (AWS TrueWind, 2005). Last, another study looked at the wind portfolios of all major power providers in the EU and found that a large contribution of wind was technically and economically feasible. The study noted that the more wind farms are interconnected, the more performance of wind turbines increases (and the costs of their electricity decreases). The study also found that extremely large shares of wind could be realized without compromising the security of the existing transmission and distribution system (European Wind Energy Association, 2005). When researchers ollowed up on their results with thousands of additional simulations in 2008 and 2009, they found that cross-border transmission of electricity from interconnected wind farms distributed across the EU would not negatively affect reliability. No single weather event or accident occurred that would affect wind farms in all or even most countries at the same time. Furthermore, they found that the effect of aggregating electricity from wind farms across multiple countries more than doubled the capacity factor of those interconnected wind turbines (Trade Wind, 2009). These studies, in other words, conclusively show that widespread use of FITs would not compromise the stability of the electricity grid by incentivizing people to connect ‘too many’ renewables. The more FITs encourage the adoption of wind and solar, the more stable the grid becomes, rather than the other way around.

#### Successful cyber-attack on the grid would cause US lash out triggering nuclear war

Habiger, 2/1/2010 (Eugue – Retired Air Force General, Cyberwarfare and Cyberterrorism, The Cyber Security Institute, p. 11-19)

However, there are reasons to believe that what is going on now amounts to a fundamental shift as opposed to business as usual. Today’s network exploitation or information operation trespasses possess a number of characteristics that suggest that the line between espionage and conflict has been, or is close to being, crossed. (What that suggests for the proper response is a different matter.) First, the number of cyberattacks we are facing is growing significantly. Andrew Palowitch, a former CIA official now consulting with the US Strategic Command (STRATCOM), which oversees the Defense Department’s Joint Task Force‐Global Network Operations, recently told a meeting of experts that the Defense Department has experienced almost 80,000 computer attacks, and some number of these assaults have actually “reduced” the military’s “operational capabilities.”20 Second, the nature of these attacks is starting to shift from penetration attempts aimed at gathering intelligence (cyber spying) to offensive efforts aimed at taking down systems (cyberattacks). Palowitch put this in stark terms last November, “We are currently in a cyberwar and war is going on today.”21 Third, these recent attacks need to be taken in a broader strategic context. Both Russia and China have stepped up their offensive efforts and taken a much more aggressive cyberwarfare posture. The Chinese have developed an openly discussed cyberwar strategy aimed at achieving electronic dominance over the U.S. and its allies by 2050. In 2007 the Department of Defense reported that for the first time China has developed first strike viruses, marking a major shift from prior investments in defensive measures.22 And in the intervening period China has launched a series of offensive cyber operations against U.S. government and private sector networks and infrastructure. In 2007, Gen. James Cartwright, the former head of STRATCOM and now the Vice Chairman of the Joint Chiefs of Staff, told the US‐China Economic and Security Review Commission that China’s ability to launch “denial of service” attacks to overwhelm an IT system is of particular concern. 23 Russia also has already begun to wage offensive cyberwar. At the outset of the recent hostilities with Georgia, Russian assets launched a series of cyberattacks against the Georgian government and its critical infrastructure systems, including media, banking and transportation sites.24 In 2007, cyberattacks that many experts attribute, directly or indirectly, to Russia shut down the Estonia government’s IT systems. Fourth, the current geopolitical context must also be factored into any effort to gauge the degree of threat of cyberwar. The start of the new Obama Administration has begun to help reduce tensions between the United States and other nations. And, the new administration has taken initial steps to improve bilateral relations specifically with both China and Russia. However, it must be said that over the last few years the posture of both the Chinese and Russian governments toward America has clearly become more assertive, and at times even aggressive. Some commentators have talked about the prospects of a cyber Pearl Harbor, and the pattern of Chinese and Russian behavior to date gives reason for concern along these lines: both nations have offensive cyberwarfare strategies in place; both nations have taken the cyber equivalent of building up their forces; both nations now regularly probe our cyber defenses looking for gaps to be exploited; both nations have begun taking actions that cross the line from cyberespionage to cyberaggression; and, our bilateral relations with both nations are increasingly fractious and complicatedby areas of marked, direct competition. Clearly, there a sharp differences between current U.S. relations with these two nations and relations between the US and Japan just prior to World War II. However, from a strategic defense perspective, there are enough warning signs to warrant preparation. In addition to the threat of cyberwar, the limited resources required to carry out even a large scale cyberattack also makes likely the potential for a significant cyberterror attack against the United States. However, the lack of a long list of specific incidences of cyberterrorism should provide no comfort. There is strong evidence to suggest that al Qaeda has the ability to conduct cyberterror attacks against the United States and its allies. Al Qaeda and other terrorist organizations are extremely active in cyberspace, using these technologies to communicate among themselves and others, carry out logistics, recruit members, and wage information warfare. For example, al Qaeda leaders used email to communicate with the 9‐11 terrorists and the 9‐11 terrorists used the Internet to make travel plans and book flights. Osama bin Laden and other al Qaeda members routinely post videos and other messages to online sites to communicate. Moreover, there is evidence of efforts that al Qaeda and other terrorist organizations are actively developing cyberterrorism capabilities and seeking to carry out cyberterrorist attacks. For example, the Washington Post has reported that “U.S. investigators have found evidence in the logs that mark a browser's path through the Internet that al Qaeda operators spent time on sites that offer software and programming instructions for the digital switches that run power, water, transport and communications grids. In some interrogations . . . al Qaeda prisoners have described intentions, in general terms, to use those tools.”25 Similarly, a 2002 CIA report on the cyberterror threat to a member of the Senate stated that al Qaeda and Hezbollah have become "more adept at using the internet and computer technologies.”26 The FBI has issued bulletins stating that, “U. S. law enforcement and intelligence agencies have received indications that Al Qaeda members have sought information on Supervisory Control And Data Acquisition (SCADA) systems available on multiple SCADA‐related web sites.”27 In addition a number of jihadist websites, such as 7hj.7hj.com, teach computer attack and hacking skills in the service of Islam.28 While al Qaeda may lack the cyber‐attack capability of nations like Russia and China, there is every reason to believe its operatives, and those of its ilk, are as capable as the cyber criminals and hackers who routinely effect great harm on the world’s digital infrastructure generally and American assets specifically. In fact, perhaps, the most troubling indication of the level of the cyberterrorist threat is the countless, serious non‐terrorist cyberattacks routinely carried out by criminals, hackers, disgruntled insiders, crime syndicates and the like. If run‐of‐the‐mill criminals and hackers can threaten powergrids, hack vital military networks, steal vast sums of money, take down a city’s of traffic lights, compromise the Federal Aviation Administration’s air traffic control systems, among other attacks, it is overwhelmingly likely that terrorists can carry out similar, if not more malicious attacks. Moreover, even if the world’s terrorists are unable to breed these skills, they can certainly buy them. There are untold numbers of cybermercenaries around the world—sophisticated hackers with advanced training who would be willing to offer their services for the right price. Finally, given the nature of our understanding of cyber threats, there is always the possibility that we have already been the victim or a cyberterrorist attack, or such an attack has already been set but not yet effectuated, and we don’t know it yet. Instead, a well‐designed cyberattack has the capacity cause widespread chaos, sow societal unrest, undermine national governments, spread paralyzing fear and anxiety, and create a state of utter turmoil, all without taking a single life. A sophisticated cyberattack could throw a nation’s banking and finance system into chaos causing markets to crash, prompting runs on banks, degrading confidence in markets, perhaps even putting the nation’s currency in play and making the government look helpless and hapless. In today’s difficult economy, imagine how Americans would react if vast sums of money were taken from their accounts and their supporting financial records were destroyed. A truly nefarious cyberattacker could carry out an attack in such a way (akin to Robin Hood) as to engender populist support and deepen rifts within our society, thereby making efforts to restore the system all the more difficult. A modestly advanced enemy could use a cyberattack to shut down (if not physically damage) one or more regional power grids. An entire region could be cast into total darkness, power‐dependent systems could be shutdown. An attack on one or more regional power grids could also cause cascading effects that could jeopardize our entire national grid. When word leaks that the blackout was caused by a cyberattack, the specter of a foreign enemy capable of sending the entire nation into darkness would only increase the fear, turmoil and unrest. While the finance and energy sectors are considered prime targets for a cyberattack, an attack on any of the 17 delineated critical infrastructure sectors could have a major impact on the United States. For example, our healthcare system is already technologically driven and the Obama Administration’s e‐health efforts will only increase that dependency. A cyberattack on the U.S. e‐health infrastructure could send our healthcare system into chaos and put countless of lives at risk. Imagine if emergency room physicians and surgeons were suddenly no longer able to access vital patient information. A cyberattack on our nation’s water systems could likewise cause widespread disruption. An attack on the control systems for one or more dams could put entire communities at risk of being inundated, and could create ripple effects across the water, agriculture, and energy sectors. Similar water control system attacks could be used to at least temporarily deny water to otherwise arid regions, impacting everything from the quality of life in these areas to agriculture. In 2007, the U.S. Cyber Consequences Unit determined that the destruction from a single wave of cyberattacks on critical infrastructures could exceed $700 billion, which would be the rough equivalent of 50 Katrina‐esque hurricanes hitting the United States all at the same time.29 Similarly, one IT security source has estimated that the impact of a single day cyberwar attack that focused on and disrupted U.S. credit and debit card transactions would be approximately $35 billion.30 Another way to gauge the potential for harm is in comparison to other similar noncyberattack infrastructure failures. For example, the August 2003 regional power grid blackout is estimated to have cost the U.S. economy up to $10 billion, or roughly .1 percent of the nation’s GDP. 31 That said, a cyberattack of the exact same magnitude would most certainly have a much larger impact. The origin of the 2003 blackout was almost immediately disclosed as an atypical system failure having nothing to do with terrorism. This made the event both less threatening and likely a single time occurrence. Had it been disclosed that the event was the result of an attack that could readily be repeated the impacts would likely have grown substantially, if not exponentially. Additionally, a cyberattack could also be used to disrupt our nation’s defenses or distract our national leaders in advance of a more traditional conventional or strategic attack. Many military leaders actually believe that such a disruptive cyber pre‐offensive is the most effective use of offensive cyber capabilities. This is, in fact, the way Russia utilized cyberattackers—whether government assets, governmentdirected/ coordinated assets, or allied cyber irregulars—in advance of the invasion of Georgia. Widespread distributed denial of service (DDOS) attacks were launched on the Georgian governments IT systems. Roughly a day later Russian armor rolled into Georgian territory. The cyberattacks were used to prepare the battlefield; they denied the Georgian government a critical communications tool isolating it from its citizens and degrading its command and control capabilities precisely at the time of attack. In this way, these attacks were the functional equivalent of conventional air and/or missile strikes on a nation’s communications infrastructure.32 One interesting element of the Georgian cyberattacks has been generally overlooked: On July 20th, weeks before the August cyberattack, the website of Georgian President Mikheil Saakashvili was overwhelmed by a more narrowly focused, but technologically similar DDOS attack.33 This should be particularly chilling to American national security experts as our systems undergo the same sorts of focused, probing attacks on a constant basis. The ability of an enemy to use a cyberattack to counter our offensive capabilities or soften our defenses for a wider offensive against the United States is much more than mere speculation. In fact, in Iraq it is already happening. Iraq insurgents are now using off‐the‐shelf software (costing just $26) to hack U.S. drones (costing $4.5 million each), allowing them to intercept the video feed from these drones.34 By hacking these drones the insurgents have succeeded in greatly reducing one of our most valuable sources of real‐time intelligence and situational awareness. If our enemies in Iraq are capable of such an effective cyberattack against one of our more sophisticated systems, consider what a more technologically advanced enemy could do. At the strategic level, in 2008, as the United States Central Command was leading wars in both Iraq and Afghanistan, a cyber intruder compromised the security of the Command and sat within its IT systems, monitoring everything the Command was doing. 35 This time the attacker simply gathered vast amounts of intelligence. However, it is clear that the attacker could have used this access to wage cyberwar—altering information, disrupting the flow of information, destroying information, taking down systems—against the United States forces already at war. Similarly, during 2003 as the United States prepared for and began the War in Iraq, the IT networks of the Department of Defense were hacked 294 times.36 By August of 2004, with America at war, these ongoing attacks compelled then‐Deputy Secretary of Defense Paul Wolfowitz to write in a memo that, "Recent exploits have reduced operational capabilities on our networks."37 This wasn’t the first time that our national security IT infrastructure was penetrated immediately in advance of a U.S. military option.38 In February of 1998 the Solar Sunrise attacks systematically compromised a series of Department of Defense networks. What is often overlooked is that these attacks occurred during the ramp up period ahead of potential military action against Iraq. The attackers were able to obtain vast amounts of sensitive information—information that would have certainly been of value to an enemy’s military leaders. There is no way to prove that these actions were purposefully launched with the specific intent to distract American military assets or degrade our capabilities. However, such ambiguities—the inability to specifically attribute actions and motives to actors—are the very nature of cyberspace. Perhaps, these repeated patterns of behavior were mere coincidence, or perhaps they weren’t. The potential that an enemy might use a cyberattack to soften physical defenses, increase the gravity of harms from kinetic attacks, or both, significantly increases the potential harms from a cyberattack. Consider the gravity of the threat and risk if an enemy, rightly or wrongly, believed that it could use a cyberattack to degrade our strategic weapons capabilities. Such an enemy might be convinced that it could win a war—conventional or even nuclear—against the United States. The effect of this would be to undermine **our** deterrence‐based defenses, making us significantly more at risk of a major war.

#### Nuclear power is increasing

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[World Nuclear News, “Nuclear growth slowing not stalling,” September 26th 2012, <http://www.world-nuclear-news.org/NP-Nuclear_growth_slowing_not_stalling-2609127.html>]

Growth rates may have slowed but world nuclear energy capacity will nevertheless continue to increase over the coming decades, according to the latest projections from the International Atomic Energy Agency (IAEA). When IAEA director general Yukiya Amano referred to the findings of the 32nd edition of the IAEA's annually updated Reference Data Series No. 1 in his address to the agency's 56th General Conference in Vienna recently, he noted that although the 2011 Fukushima Daiichi accident raised "fundamental questions" on nuclear's future, the atom will remain an important option for many countries, with developing countries continuing to show a keen interest in nuclear power. The newly released report - full title Energy, Electricity and Nuclear Power Estimates for the Period up to 2050 - contains high and low projections of energy, electricity and nuclear power trends over the coming years. Under the low scenario, installed nuclear capacity is predicted to grow from 2011's 370 GWe to reach 456 GWe by 2030, about 9% down on the increase projected in 2011. A ten-year delay in growth anticipated before the Fukushima accident is observed, with nuclear capacity taking until 2030 to reach levels that had previously been anticipated for 2020. The high scenario predicts nuclear capacity reaching 740 GWe by 2040. Projected growth is strongest in the east Asia, including China and South Korea, where regional capacity is forecast to grow from 80 GWe at the end of 2011 to 153 GWe in 2030 in the low scenario and 274 GWe in the high scenario. Growth is expected in all regions of the world under the high scenario, although total Western European nuclear capacity could decline from 115 GWe in 2011 to 70 GWe in 2030 under the low scenario. The low scenario also sees a slight decrease for nuclear capacity in North America. The figures on nuclear are based on actual statistical data collected by the IAEA, with country-by-country estimates of future nuclear capacity established by a group of experts using a 'bottom up' approach. All possible licence renewals, planned shutdowns and plausible construction projects are taken into consideration. The conservative low scenario assumes the continuation of current trends and few unexpected policy changes, although it is compatible with a potential decline in nuclear's share of Japan's electricity mix. The more optimistic high scenario assumes that current global financial and economic crises are overcome relatively soon and global policies are implemented to mitigate climate change. Both scenarios are plausible and technically feasible, the IAEA maintains. The report recognises the on-going global financial crisis, the low price of natural gas and reduced electricity demand in some regions, in addition to responses to Fukushima, as challenges that will serve to temporarily delay the deployment of some nuclear power plants. Eighteen months on from the Fukushima Daiichi nuclear accident there is still uncertainty about the full extent of the effects of individual policy responses to regional projections. Nevertheless, the report says, the "underlying fundamentals of population growth and demand for electricity in the developing world," coupled with concerns over climate change, energy security and price volatility for other fuels, "continue to point to nuclear generating capacity playing an important role in the energy mix in the longer term."

#### Expansion of nuclear power is key to solve water wars HIGHLIGHT DOWN

Solan et al., Public Policy Prof @ Boise State, ’10

[David Solan, Director, Energy Policy Institute (EPI), Associate Director, Center for Advanced Energy Studies (CAES), Assistant Professor, Public Policy and Administration, Boise State, Geoffrey A Black, PhD, Associate Professor, Department Chair, Economics, Boise State, et al. “Economic and Employment Impacts of Small Modular Reactors,” June 2010]

Besides electricity generation, additional applications may be well-­‐suited for SMR systems in the future. While the applicability of nuclear energy to additional applications is not dependent on facility size, the actual use of large nuclear facilities does not occur due to economic considerations. Currently, only a few countries utilize nuclear energy for non-­‐generation purposes, primarily desalination and district heating (IAEA, 2008). A brief overview of the application possibilities for SMRs is provided below. Desalination. The IAEA has identified desalination as possibly the leading non-­‐electric civilian use for nuclear energy. Water scarcity is becoming an increasingly problematic global issue in both developed and developing countries. As noted in an IAEA (2007) report, Because of population growth, surface water resources are increasingly stressed in many parts of the world, developed and developing regions alike. Water stress is counter to sustainable development; it engenders disease; diverts natural flows, endangering flora and fauna of rivers, lakes wetlands, deltas and oceans; and it incites regional conflicts over water rights. In the developing world, more than one billion people currently lack access to safe drinking water; nearly two and a half billion lack access to adequate sanitation services. This would only get worse as populations as populations grow. Water stress is severe in the developed world as well…in light of these trends, many opportunities in both developed and developing countries are foreseen for supply of potable water generated using nuclear process heat or off-­‐peak electricity (p. 23). The desalination of sea water requires large amounts of energy and is not dependent on a particular fuel for heat or electricity. The IAEA (2000) defines nuclear desalination as “the production of potable water from sea water in a facility in which a nuclear reactor is used as the source of energy for the desalination process” (pg. 3). The three technologies that comprise nuclear desalination are nuclear, the desalination method, and the system that couples them together (IAEA, 2000). The feasibility of integrated nuclear desalination plants has been proven with over 175 reactor-­‐years of experience worldwide (IAEA, 2007a). Large-­‐scale, proven commercial technologies for desalination can be grouped into distillation processes and the reverse osmosis process. Distillation technologies require heat to create steam which condenses and separates fresh water from brine. Reverse osmosis requires only electricity to push fresh water from the higher pressure saltwater side of a semi-­‐permeable membrane to the lower pressure freshwater side. An IAEA study (2007a) on the economics of nuclear desalination reported that SMRs offer the largest potential as coupling options to nuclear desalination systems in developing countries’ (p. 4). Furthermore, the study found that the costs for nuclear desalination are roughly similar to that of natural gas desalination, and could be substantially lower depending on fuel costs (IAEA, 2007a). Based on a preliminary assessment of the global desalination market through 2030, particularly in developing countries, desalination has the potential to provide a strong market for SMRs if they can successfully compete with conventional nuclear plants and other sources of generation (Arthur, 2010).

#### Global nuclear war

NASCA, ’04

[National Association for Scientific & Cultural Appreciation, “Water shortages - Only a matter of time,” http://www.nasca.org.uk/Strange\_relics\_/water/water.html]

Water is one of the prime essentials for life as we know it. The plain fact is - no water, no life! This becomes all the more worrying when we realise that the worlds supply of drinkable water will soon diminish quite rapidly. In fact a recent report commissioned by the United Nations has emphasised that by the year 2025 at least 66% of the worlds population will be without an adequate water supply. As a disaster in the making water shortage ranks in the top category. Without water we are finished, and it is thus imperative that we protect the mechanism through which we derive our supply of this life giving fluid. Unfortunately the exact opposite is the case. We are doing incalculable damage to the planets capacity to generate water and this will have far ranging consequences for the not too distant future. The United Nations has warned that burning of fossil fuels is the prime cause of water shortage. While there may be other reasons such as increased solar activity it is clear that this is a situation over which we can exert a great deal of control. If not then the future will be very bleak indeed! Already the warning signs are there. The last year has seen devastating heatwaves in many parts of the world including the USA where the state of Texas experienced its worst drought on record. Elsewhere in the United States forest fires raged out of control, while other regions of the globe experienced drought conditions that were even more severe. Parts of Iran, Afgahnistan, China and other neighbouring countries experienced their worst droughts on record. These conditions also extended throughout many parts of Africa and it is clear that if circumstances remain unchanged we are facing a disaster of epic proportions. Moreover it will be one for which there is no easy answer. The spectre of a world water shortage evokes a truly frightening scenario. In fact the United Nations warns that disputes over water will become the prime source of conflict in the not too distant future. Where these shortages become ever more acute it could forseeably lead to the brink of nuclear conflict. On a lesser scale water, and the price of it, will acquire an importance somewhat like the current value placed on oil. The difference of cour

### Transhumanism

#### **Speciesism is key to Transhumanism**

CALVERLY ‘6 (David; Center for the Study of Law, Science and Technology – Arizona State University, “Android Science and Animal Rights, Does an Analogy Exist?” Connection Science, 18:4, December)

Even more fundamentally, there are concerns that arise at the earliest stages of development of a machine consciousness. The endeavour itself is replete with moral and ethical pitfalls. If the same logic as urged for animal rights, or for the rights of foetuses, is applied to a machine consciousness, some of these issues could have the potential to curtail radically the development of a conscious entity. If part of the process of developing a machine consciousness is an emergent learning process (Lindblom and Ziemke 2006), or even a process of creating various modules that add attributes of consciousness such as sentience, nociception, or language, in a cumulative fashion, some could argue that this is immoral. As posed by LaChat (1986: 75–76), the question becomes ‘Is the AI experiment then immoral from its inception, assuming, that is, that the end (telos) of the experiment is the production of a person? . . . An AI experiment that aims at producing a self-reflexively conscious and communicative “person” is prima facie immoral’. Must designers of a machine consciousness be aware that as they come closer to their goal, they may have to consider such concerns in their experimentation? Arguably yes, if human equivalence is the ultimate goal. Failure to treat a machine consciousness in a moral way could be viewed as a form of speciesism (Ryder 1975). The utilitarian philosopher J. J. C. Smart (1973: 67) has observed ‘if it became possible to control our evolution in such a way as to develop a superior species, then the difference between species morality and a morality of all sentient beings would become much more of a live issue’.

#### **Transhuman focus means we address existential risks – those outweigh**

Nick Bostrom, Faculty of Philosophy Oxford University, The Transhumanist FAQ- A General Introduction, Version 2.1 (2003), google.

Yes, and this implies an urgent need to analyze the risks before they materialize and to take steps to reduce them. Biotechnology, nanotechnology, and artificial intelligence pose especially serious risks of accidents and abuse. [See also “ If these technologies are so dangerous, should they be banned? What can be done to reduce the risks?” ] One can distinguish between, on the one hand, endurable or limited hazards, such as car crashes, nuclear reactor meltdowns, carcinogenic pollutants in the atmosphere, floods, volcano eruptions, and so forth, and, on the other hand, existential risks – events that would cause the extinction of intelligent life or permanently and drastically ~~cripple~~ [halt] its potential. While endurable or limited risks can be serious – and may indeed be fatal to the people immediately exposed – they are recoverable; they do not destroy the long-term prospects of humanity as a whole. Humanity has long experience with endurable risks and a variety of institutional and technological mechanisms have been employed to reduce their incidence. Existential risks are a different kind of beast. For most of human history, there were no significant existential risks, or at least none that our ancestors could do anything about. By definition, of course, no existential disaster has yet happened. As a species we may therefore be less well prepared to understand and manage this new kind of risk. Furthermore, the reduction of existential risk is a global public good (everybody by necessity benefits from such safety measures, whether or not they contribute to their development), creating a potential free-rider problem, i.e. a lack of sufficient selfish incentives for people to make sacrifices to reduce an existential risk. Transhumanists therefore recognize a moral duty to promote efforts to reduce existential risks.

### Aliens Turn

#### The rules of anthropocentrism would be justifiably applicable to extra-terrestrial life

Huebert and Block ‘7 (J.H. and Walter , 2007, J.D. - University of Chicago and Harold E. Wirth Eminent Scholar Endowed Chair in Econmics - College of Business Administration - Loyola University, "Space Environmentalism, Property Rights, and the Law" 37 U. Mem. L. Rev. 281, Winter, ln

Some observers, such as Roberts, believe that bodies "with the potential for harboring biotic or prebiotic activity" present a special case for which different rules must apply. Roberts states that where life exists or even potentially exists, we must apply the "precautionary principle," which would place the burden of proof on those engaged in a "challenged activity" and prohibit development that threatens evidence of past life or the existence of present or "potential" life. [n96](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview" \l "n96" \t "_blank) We disagree. First, we note that there is no evidence that life exists or has ever existed anywhere in the **solar** System except Earth. [n97](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview" \l "n97" \t "_blank) Further, there is a strong consensus that to the extent that life might exist or have ever existed elsewhere, such as on Mars or Europa, it is limited to extremely simple microscopic organisms. [n98](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview" \l "n98" \t "_blank) The likelihood of sentient or even plant life existing elsewhere in the solar System appears to be zero, and the question of life on planets outside the solar System is very hypothetical, even for an article on space law. [n99](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview" \l "n99" \t "_blank) Therefore, a presumption against the existence of actual life where no evidence to the contrary exists seems proper. Further, space environmentalists have failed to make the case that environmental regulations are necessary to protect whatever extraterrestrial life (or evidence thereof) may exist. Humans are fascinated by the prospect of the existence of any kind of extraterrestrial life. Anyone who bothers to go to space for any purpose is likely to be interested in checking for signs of past or present life on his property (or prospective property) before acting in a way that might destroy it. For the intellectually uncurious, there would still be financial incentives. For example, scientific or environmental organizations could offer prize money for discovery of evidence [\*303] of extraterrestrial life; a property owner who discovers evidence of life could sell scientists, journalists, and others rights to access, study, and publicize information about the discovery. Only governmental intervention (e.g., stripping individuals of property rights when something of scientific interest is found on their property) is likely to cause incentives to run in any other direction. [n100](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview" \l "n100" \t "_blank) Suppose there were the proverbial "little green creatures" discovered on Mars or on any other planet humans colonized. What rights would they have? What obligations would we have to respect these rights? If they were smarter/stronger than we, the shoe of course would be on the other foot. There are several options. If they had the intelligence/ability of dogs or cats, then we would treat them as we now do those animals. But suppose they were an intermediate between us and the smartest of earth animals (chimps, porpoises), or had human qualities but looked like a cross between an octopus and a giraffe. According to Rothbard, [n101](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview" \l "n101" \t "_blank) if they could communicate with us, promise to respect our personal and property rights, and adhere to such undertakings, then and only then would we be obligated to treat them as we do each other (well, better, hopefully).

#### Embracing aliens leads to extinction

Leake, Writer for the Sunday Times, 10

[Jonathon, The Sunday Times, “Don’t talk to aliens, warns Stephen Hawking” 4/25/10 http://www.timesonline.co.uk/tol/news/science/space/article7107207.ece ,accessed 6/21/11,HK]

THE aliens are out there and Earth had better watch out, at least according to Stephen Hawking. He has suggested that extraterrestrials are almost certain to exist — but that instead of seeking them out, humanity should be doing all it that can to avoid any contact. The suggestions come in a new documentary series in which Hawking, one of the world’s leading scientists, will set out his latest thinking on some of the universe’s greatest mysteries. Alien life, he will suggest, is almost certain to exist in many other parts of the universe: not just in planets, but perhaps in the centre of stars or even floating in interplanetary space. Hawking’s logic on aliens is, for him, unusually simple. The universe, he points out, has 100 billion galaxies, each containing hundreds of millions of stars. In such a big place, Earth is unlikely to be the only planet where life has evolved. “To my mathematical brain, the numbers alone make thinking about aliens perfectly rational,” he said. “The real challenge is to work out what aliens might actually be like.” The answer, he suggests, is that most of it will be the equivalent of microbes or simple animals — the sort of life that has dominated Earth for most of its history. One scene in his documentary for the Discovery Channel shows herds of two-legged herbivores browsing on an alien cliff-face where they are picked off by flying, yellow lizard-like predators. Another shows glowing fluorescent aquatic animals forming vast shoals in the oceans thought to underlie the thick ice coating Europa, one of the moons of Jupiter. Such scenes are speculative, but Hawking uses them to lead on to a serious point: that a few life forms could be intelligent and pose a threat. Hawking believes that contact with such a species could be devastating for humanity. He suggests that aliens might simply raid Earth for its resources and then move on: “We only have to look at ourselves to see how intelligent life might develop into something we wouldn’t want to meet. I imagine they might exist in massive ships, having used up all the resources from their home planet. Such advanced aliens would perhaps become nomads, looking to conquer and colonise whatever planets they can reach.” He concludes that trying to make contact with alien races is “a little too risky”. He said: “If aliens ever visit us, I think the outcome would be much as when Christopher Columbus first landed in America, which didn’t turn out very well for the Native Americans.” The completion of the documentary marks a triumph for Hawking, now 68, who is paralysed by motor neurone disease and has very limited powers of communication. The project took him and his producers three years, during which he insisted on rewriting large chunks of the script and checking the filming. John Smithson, executive producer for Discovery, said: “He wanted to make a programme that was entertaining for a general audience as well as scientific and that’s a tough job, given the complexity of the ideas involved.” Hawking has suggested the possibility of alien life before but his views have been clarified by a series of scientific breakthroughs, such as the discovery, since 1995, of more than 450 planets orbiting distant stars, showing that planets are a common phenomenon. So far, all the new planets found have been far larger than Earth, but only because the telescopes used to detect them are not sensitive enough to detect Earth-sized bodies at such distances. Another breakthrough is the discovery that life on Earth has proven able to colonise its most extreme environments. If life can survive and evolve there, scientists reason, then perhaps nowhere is out of bounds. Hawking’s belief in aliens places him in good scientific company. In his recent Wonders of the Solar System BBC series, Professor Brian Cox backed the idea, too, suggesting Mars, Europa and Titan, a moon of Saturn, as likely places to look. Similarly, Lord Rees, the astronomer royal, warned in a lecture earlier this year that aliens might prove to be beyond human understanding. “I suspect there could be life and intelligence out there in forms we can’t conceive,” he said. “Just as a chimpanzee can’t understand quantum theory, it could be there are aspects of reality that are beyond the capacity of our brains.”

### AT: Anthropocentrism

#### Human-centeredness is key to environmental sustainability

Schmidtz 2k – Professor of Philosophy @ Arizona

David Schmidtz, 2k. Philosophy, University of Arizona, Environmental Ethics, p. 379-408

Like economic reasoning, ecological reasoning is reasoning about equilibria and perturbations that keep systems from converging on equilibria. Like economic reasoning, ecological reasoning is reasoning about competition and unintended consequences, and the internal logic of systems, a logic that dictates how a system responds to attempts to manipulate it. Environmental activism and regulation do not automatically improve the environment. It is a truism in ecology, as in economics, that well-intentioned interventions do not necessarily translate into good results. Ecology (human and nonhuman) is complicated, our knowledge is limited, and environmentalists are themselves only human. Intervention that works with the system’s logic rather than against it can have good consequences. Even in a centrally planned economy, the shape taken by the economy mainly is a function not of the central plan but of how people respond to it, and people respond to central plans in ways that best serve their purposes, not the central planner’s. Therefore, even a dictator is in no position simply to decide how things are going to go. Ecologists understand that this same point applies in their own discipline. They understand that an ecology’s internal logic limits the directions in which it can be taken by would-be ecological engineers. Within environmental philosophy, most of us have come around to something like Aldo Leopold’s view of humans as plain citizens of the biotic community.[[21]](http://www.theihs.org/libertyguide/hsr/hsr.php?id=41&print=1" \l "_ftn22) As Bryan Norton notes, the contrast between anthropocentrism and biocentrism obscures the fact that we increasingly need to be nature-centered to be properly human-centered; we need to focus on "saving the ecological systems that are the context of human cultural and economic activities." [[22]](http://www.theihs.org/libertyguide/hsr/hsr.php?id=41&print=1" \l "_ftn23) If we do not tend to what is good for nature, we will not be tending to what is good for people either. As Gary Varner recently put it, on purely anthropocentric grounds we have reason to think biocentrically.[[23]](http://www.theihs.org/libertyguide/hsr/hsr.php?id=41&print=1" \l "_ftn24) I completely agree. What I wish to add is that the converse is also true: on purely biocentric grounds, we have reason to think anthropocentrically. We need to be human-centered to be properly nature-centered, for if we do not tend to what is good for people, we will not be tending to what is good for nature either. From a biocentric perspective, preservationists sometimes are not anthropocentric enough. They sometimes advocate policies and regulations with no concern for values and priorities that differ from their own. Even from a purely biocentric perspective, such slights are illegitimate. Policy makers who ignore human values and human priorities that differ from their own will, in effect, be committed to mismanaging the ecology of which those ignored values and priorities are an integral part.

#### Equating speciesism with racism/sexism is offensive and absurd

NICOLL and RUSSELL ‘1 (Charles, Prof. Integrative Biology @ UC Berkeley, and Sharon, Dept. Physiology-Anatomy @ UC Berkeley, in “Why Animal Experimentation Matters: The Use of Animals in Medical Research”, Ed. Paul and Paul, p. 161-162)

Some advocates for animals, including Singer, do not believe that animals deserve to have rights in the same sense that we accord tern to humans.5° Instead, they argue that because animals meet their criteria of "moral relevance," they are entitled to equal moral consideration with human beings. If we are willing to exploit animals in any way, we should be willing to do likewise to people since humans are not more "morally relevant" than animals. When we regard animals to be less than our moral equals, we are practicing a kind of interspecies discrimination that these advocates call "speciesism," an attitude they analogize to types of intraspecies discrimination such as sexism and racism. Richard Ryder claims credit for coining the term "speciesism" in 1970.51 In 1985 the term was defined in the Oxford English Dictionary as "[d]iscrimination against or exploitation of certain animal species by human beings, based on an assumption of mankind's superiority."52 Singer has stated that [s]peciesism ... is a prejudice or attitude of bias in favor of the interests of members of one's own species and against those of members of other species."53 To support the correctness of their opinion about the immorality of speciesism, animal activists claim that it is comparable to discrimination on the basis of sex or race. We object strongly to this kind of equation. To quote Cohen again, "[t]his argument is worse than unsound: it is atrocious."54 Sexism and racism are not justifiable because normal men and women of all racial and ethnic groups are, on average, intellectually and morally equal, and their behavior can be judged against the same moral standards. Animals do not have such equivalence with humans. To deny rights or equal consideration on the basis of sex or race is immoral because all normal humans, regardless of sex, ethnicity, or race, can claim the rights and considerations that they deserve, and they know what it means to be unjustly denied them. No animals have these abilities. Speciesism, as defined by Ryder and Singer, is a normal kind of discrimination displayed by all social animals, but racism and sexism are widely considered to be morally indefensible practices. By equating racism and sexism with speciesism, Ryder and Singer degrade the struggle to achieve racial and sexual equality.55 In addition to having this ethical problem, the concept of speciesism is also biologically absurd; we consider this below.

#### Their ethic is biologically impossible

Duckler 8 – PhD in Biology

Geordie, ARTICLE: TWO MAJOR FLAWS OF THE ANIMAL RIGHTS MOVEMENT, PhD in Biology, JD from Northwestern, 14 Animal L. 179

**Those of us at the heart of the animal law movement envision a world** in which the lives and interests of all sentient beings are respected within the legal system, where companion animals have good, loving homes for a lifetime, where wild animals can live out their natural lives according to their instincts in an environment that supports their needs - a world **in which animals are not exploited, terrorized, tortured or controlled to serve frivolous or greedy human purposes**. This vision guides in working toward a far more just and truly humane society. [n83](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n83)   A workable definition of "sentience" or "sentient beings" notwithstanding, **one would have to ignore the last hundred and fifty years of accumulated rigorous scientific study of how evolution by natural selection actually works in the natural world to sincerely make such a  [\*197]  plea**. [n84](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n84) **A world "in which animals are not exploited, terrorized, tortured or controlled to serve frivolous or greedy human purposes"** [n85](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n85) **is an unobtainable, inherently biologically impossible world.** Moreover, **the world of nature** to which Tischler fervently hopes to return animals already is a world in which **animals are "exploited, terrorized, tortured or controlled"** [n86](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n86) **to serve the frivolous or greedy purposes of other animals, including conspecifics and kin.**

#### Morality fails to apply across animalia – other animals won’t respect morality

Duckler 8 – PhD in Biology

Geordie, ARTICLE: TWO MAJOR FLAWS OF THE ANIMAL RIGHTS MOVEMENT, PhD in Biology, JD from Northwestern, 14 Animal L. 179

**Another example of ethical conflict created by the animal rights position is that the entire animal world must be seen to be inherently immoral because the new "rights" will never be respected between and among animals other than humans**. [n89](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n89) **God help the activist who tries valiantly to hold long onto the argument that it is morality that demands legal rights for animals: A basic biology text would stop them absolutely cold at the early chapter describing the major division of all  [\*198]  life into prokaryotes and eukaryotes**. [n90](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n90) If activists gleaned their information from a college science lesson instead of from a religious tome, they would find that prokaryotes engage in immoral acts: **Throughout earth history, prokaryotes have created immense global "crises of starvation, pollution, and extinction**" [n91](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n91) **that make human parallels appear trivial in comparison. Prokaryotes destroy other organisms by the great multitude, routinely transfer genetic material freely from individual to individual, fool around with genetic engineering, create "chimeras" at a level that our most ill-advised laboratory technicians could only dream about, and fundamentally alter the biotic and abiotic world in doing so**. [n92](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n92)

#### Human separation from nature is inevitable and good- the transition to small ag leads to poverty and environmental destruction

Bailey 6 – Economic Philosopher

Ronald, Economic Philosopher and Science Editor for Reason Magazine, The Lingering Stench of Malthus, <http://www.reason.com/news/show/117481.html>

The further good news is that the movement of humanity's burgeoning population into the thousand of megacities foreseen that Rifkin is part of a process that ultimately will leave more land for nature. Today cities occupy just 2 percent of the earth's surface, but that will likely double to 4 percent over the next half century. In order to avoid this ostensibly terrible fate Rifkin proclaims, "In the next phase of human history, we will need to find a way to reintegrate ourselves into the rest of the living Earth if we are to preserve our own species and conserve the planet for our fellow creatures." Actually, he's got it completely backwards. Humanity must not reintegrate into nature-that way lays disaster for humanity and nature. Instead we must make ourselves even more autonomous than we already are from her. Since nothing is more destructive of nature than poverty stricken subsistence farmers, boosting agricultural productivity is the key to the human retreat from wild nature. As Jesse Ausubel, the director for the Program for the Human Environment at Rockefeller University, points out: "If the world farmer reaches the average yield of today's US corn grower during the next 70 years, ten billion people eating as people now on average do will need only half of today's cropland. The land spared exceeds Amazonia." Similarly all of the world's industrial wood could be produced on an area that is less than 10 percent of the world's forested area today leaving 90 percent of the world's forests for Nature.

#### No such thing as root cause

Holland 6 (Joshua, “About those real reasons for the invasion of Iraq …” March 20, 2006, Alternet, <http://www.alternet.org/blogs/echochamber/33790/>)

That's because there is almost never one "real" cause of any foreign policy action. Look seriously at foreign policy formation and you'll see that FoPo is an extension of domestic politics, with all its varied constituents and interest groups. That's why all of the reasons thrown about for this war are correct, except the ones that the administration that started it have peddled. So, yes, the guys at Lockheed and Boeing and Northrop Grumman and Raytheon and General Dynamics wanted this war because all wars are good for business. And, yes, Bush's oil buddies wanted access to a big chunk of the world's petroleum reserves. (Because I like accuracy, I replaced my 'No Blood For Oil' bumper sticker with a bumper-length banner reading: 'No blood for assuring a stable energy supply-chain to a global economy in which we're heavily invested.') Yes, there were various stripes of Neo-cons and democratic imperialists and other PNAC-type ideologues who wanted to enforce a global 'rule set' centered around American hegemony. And, yes, there were the boys from Halliburton and Bechtel and Dyncorp and Caci and Titan who wanted fat contracts to rebuild Iraq (which they've totally fucked up). No doubt that there were good ole' boys from the Chamber of Commerce and AEI who George saw on the links or in the clubhouse and who told him how marvelous it would be to see what a fully privatized neo-liberal laboratory would look like in action. I'm sure, too, that there were various Fundie Christian extremists who thought a big conflagration in the Middle East would set off the rapture.

# 2NC

## Framework

### T

#### Interpretation—incentives are positive inducements only—that excludes negative requirements like mandates and penalties

Harris, law prof, 89

(Fred Harris, professor of law at U Illinois, “Automobile Emissions Control Inspection and Maintenance Program: Making It More Palatable to Coerced Participants”, 49 La. L. Rev. 1315 (1988-1989), Hein Online)

53. The term "incentives," for purposes of this Article, means those devices that induce one into doing something because of the prospect of reward and, therefore, engender a positive feeling within the actor. An example of incentives in this sense would be tax incentives like credits and/or deductions. But it appears that Congress, some courts and a few commentators have taken a broader view of incentives and have categorized items such as extensions to compliance deadlines and, most notably, sanctions in the Act-denials of federal grants and bans on construction in the event of noncompliance-as incentives to compliance. To be sure, these latter items may induce compliance but surely not because of the extension of a "carrot." Instead, they epitomize the "stick" or "disincentive" approach to behavioral modification.

#### Violation—the aff is a negative requirement—<insert card if needed>

#### Interpretation –

#### Restrictions are legal limits an activity

Gerald N. Hill and Kathleen T. Hill – 2005, the Free Dictionary, http://legal-dictionary.thefreedictionary.com/Restrictions

restriction n. any limitation on activity, by statute, regulation or contract provision. In multi-unit real estate developments, condominium and cooperative housing projects, managed by homeowners' associations or similar organizations are usually required by state law to impose restrictions on use. Thus, the restrictions are part of the "covenants, conditions and restrictions," intended to enhance the use of common facilities and property, recorded and incorporated into the title of each owner.

#### “on” indicates the object affected by the action

American Heritage Dictionary – 2000, http://www.thefreedictionary.com/ON

on (n, ôn)

prep.

1.

a. Used to indicate position above and supported by or in contact with: The vase is on the table. We rested on our hands and knees.

b. Used to indicate contact with or extent over (a surface) regardless of position: a picture on the wall; a rash on my back.

c. Used to indicate location at or along: the pasture on the south side of the river; a house on the highway.

d. Used to indicate proximity: a town on the border.

e. Used to indicate attachment to or suspension from: beads on a string.

f. Used to indicate figurative or abstract position: on the young side, but experienced; on her third beer; stopped on chapter two.

2.

a. Used to indicate actual motion toward, against, or onto: jumped on the table; the march on Washington.

b. Used to indicate figurative or abstract motion toward, against, or onto: going on six o'clock; came on the answer by accident.

3.

a. Used to indicate occurrence at a given time: on July third; every hour on the hour.

b. Used to indicate the particular occasion or circumstance: On entering the room, she saw him.

4.

a. Used to indicate the object affected by actual, perceptible action: The spotlight fell on the actress. He knocked on the door.

b. Used to indicate the object affected by a figurative action: Have pity on them.

c. Used to indicate the object of an action directed, tending, or moving against it: an attack on the fortress.

d. Used to indicate the object of perception or thought: gazed on the vista; meditated on his actions.

5. Used to indicate the agent or agency of a specified action: cut his foot on the broken glass; talked on the telephone.

6.

a. Used to indicate a medicine or other corrective taken or undertaken routinely: went on a strict diet.

b. Used to indicate a substance that is the cause of an addiction, a habit, or an altered state of consciousness: high on dope.

7.

a. Used to indicate a source or basis: "We will reach our judgments not on intentions or on promises but on deeds and on results" (Margaret Thatcher).

b. Used to indicate a source of power or energy: The car runs on methane.

8.

a. Used to indicate the state or process of: on leave; on fire; on the way.

b. Used to indicate the purpose of: travel on business.

c. Used to indicate a means of conveyance: ride on a train.

d. Used to indicate availability by means of: beer on tap; a physician on call.

9. Used to indicate belonging to: a nurse on the hospital staff.

10. Used to indicate addition or repetition: heaped error on error.

11.

a. Concerning; about: a book on astronomy.

b. Concerning and to the disadvantage of: We have some evidence on him.

12. Informal In one's possession; with: I haven't a cent on me.

13. At the expense of; compliments of: drinks on the house.

#### Energy production of nuclear power is the generation of electricity

US EIA (Energy Information Administration) - October 19, 2011, Annual Energy Review 2010, http://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf

Primary Energy Production: Production of primary energy. The U.S. Energy Information Administration includes the following in U.S. primary energy production: coal production, waste coal supplied, and coal refuse recovery; crude oil and lease condensate production; natural gas plant liquids production; dry natural gas—excluding supplemental gaseous fuels—production; nuclear electricity net generation (converted to Btu using the nuclear heat rates); conventional hydroelectricity net generation (converted to Btu using the fossil-fuels heat rates); geothermal electricity net generation (converted to Btu using the fossil-fuels heat rates), and geothermal heat pump energy and geothermal direct use energy; solar thermal and photovoltaic electricity net generation (converted to Btu using the fossilfuels heat rates), and solar thermal direct use energy; wind electricity net generation (converted to Btu using the fossil-fuels heat rates); wood and wood-derived fuels consumption; biomass waste consumption; and biofuels feedstock.

#### Violation – The aff does not remove a limitation on the conversion to energy – they say increased production is bad

#### This makes them anti-topical – saying energy production is bad means no neg ground – impossible to defend the status quo against the status quo – leads to bad debates because there’s no clash and is a unique link to the predictability debate

#### Absent questions of engagement with existing institutions their aff is useless – individual change is overshadowed by dominant structures

Wight – Professor of IR @ University of Sydney – 6

(Colin, Agents, Structures and International Relations: Politics as Ontology, pgs. 48-50

One important aspect of this relational ontology is that these relations constitute our identity as social actors. According to this relational model of societies, one is what one is, by virtue of the relations within which one is embedded. A worker is only a worker by virtue of his/her relationship to his/her employer and vice versa. ‘Our social being is constituted by relations and our social acts presuppose them.’ At any particular moment in time an individual may be implicated in all manner of relations, each exerting its own peculiar causal effects. This ‘lattice-work’ of relations constitutes the structure of particular societies and endures despite changes in the individuals occupying them. Thus, the relations, the structures, are ontologically distinct from the individuals who enter into them. At a minimum, the social sciences are concerned with two distinct, although mutually interdependent, strata. There is an ontological difference between people and structures: ‘people are not relations, societies are not conscious agents’. Any attempt to explain one in terms of the other should be rejected. If there is an ontological difference between society and people, however, we need to elaborate on the relationship between them. Bhaskar argues that we need a system of mediating concepts, encompassing both aspects of the duality of praxis into which active subjects must fit in order to reproduce it: that is, a system of concepts designating the ‘point of contact’ between human agency and social structures. This is known as a ‘positioned practice’ system. In many respects, the idea of ‘positioned practice’ is very similar to Pierre Bourdieu’s notion of *habitus*. Bourdieu is primarily concerned with what individuals do in their daily lives. He is keen to refute the idea that social activity can be understood solely in terms of individual decision-making, or as determined by surpa-individual objective structures. Bourdieu’s notion of the *habitus* can be viewed as a bridge-building exercise across the explanatory gap between two extremes. Importantly, the notion of a habitus can only be understood in relation to the concept of a ‘social field’. According to Bourdieu, a social field is ‘a network, or a configuration, of objective relations between positions objectively defined’. A social field, then, refers to a structured system of social positions occupied by individuals and/or institutions – the nature of which defines the situation for their occupants. This is a social field whose form is constituted in terms of the relations which define it as a field of a certain type. A *habitus* (positioned practices) is a mediating link between individuals’ subjective worlds and the socio-cultural world into which they are born and which they share with others. The power of the habitus derives from the thoughtlessness of habit and habituation, rather than consciously learned rules. The habitus is imprinted and encoded in a socializing process that commences during early childhood. It is inculcated more by experience than by explicit teaching. Socially competent performances are produced as a matter of routine, without explicit reference to a body of codified knowledge, and without the actors necessarily knowing what they are doing (in the sense of being able adequately to explain what they are doing). As such, the *habitus* can be seen as the site of ‘internalization of reality and the externalization of internality.’ Thus social practices are produced in, and by, the encounter between: (1) the *habitus* and its dispositions; (2) the constraints and demands of the socio-cultural field to which the habitus is appropriate or within; and (3) the dispositions of the individual agents located within both the socio-cultural field and the *habitus*. When placed within Bhaskar’s stratified complex social ontology the model we have is as depicted in Figure 1. The explanation of practices will require all three levels. Society, as field of relations, exists prior to, and is independent of, individual and collective understandings at any particular moment in time; that is, social action requires the conditions for action. Likewise, given that behavior is seemingly recurrent, patterned, ordered, institutionalised, and displays a degree of stability over time, there must be sets of relations and rules that govern it. Contrary to individualist theory, these relations, rules and roles are not dependent upon either knowledge of them by particular individuals, or the existence of actions by particular individuals; that is, their explanation cannot be reduced to consciousness or to the attributes of individuals. These emergent social forms must possess emergent powers. This leads on to arguments for the reality of society based on a causal criterion. Society, as opposed to the individuals that constitute it, is, as Foucault has put it, ‘a complex and independent reality that has its own laws and mechanisms of reaction, its regulations as well as its possibility of disturbance. This new reality is society…It becomes necessary to reflect upon it, upon its specific characteristics, its constants and its variables’.

#### Even if < their topic > is important to talk about, a controversial policy statement must be the starting point for discussion – That focus is the internal link to all our decision-making impact AND turns the aff – Without striving towards concrete solutions, we are just spitting into the wind

Austin J. Freeley and David L. Steinberg – John Carroll University / U Miami – 2009, Argumentation and Debate: Critical Thinking for Reasoned Decision Making, p. 4-5, googlebooks

 Debate is a means of settling differences, so there must be a difference of opinion or a conflict of interest before there can be a debate. If everyone is in agreement on a tact or value or policy, there is no need for debate: the matter can be settled by unanimous consent. Thus, for example, it would be pointless to attempt to debate "Resolved: That two plus two equals four," because there is simply no controversy about this statement. (Controversy is an essential prerequisite of debate. Where there is no clash of ideas, proposals, interests, or expressed positions on issues, there is no debate. In addition, debate cannot produce effective decisions without clear identification of a question or questions to be answered. For example, general argument may occur about the broad topic of illegal immigration. How many illegal immigrants are in the United States? What is the impact of illegal immigration and immigrants on our economy? What is their impact on our communities? Do they commit crimes? Do they take jobs from American workers? Do they pay taxes? Do they require social services? Is it a problem that some do not speak English? Is it the responsibility of employers to discourage illegal immigration by not hiring undocumented workers? Should they have the opportunity to gain citizenship? Does illegal immigration pose a security threat to our country? Do illegal immigrants do work that American workers are unwilling to do? Are their rights as workers and as human beings at risk due to their status? Are they abused by employers, law enforcement, housing, and businesses? How are their families impacted by their status? What is the moral and philosophical obligation of a nation state to maintain its borders? Should we build a wall on the Mexican border, establish a national identification card, or enforce existing laws against employers? Should we invite immigrants to become U.S. citizens? Surely you can think of many more concerns to be addressed by a conversation about the topic area of illegal immigration. Participation in this "debate" is likely to be emotional and intense. However, it is not likely to be productive or useful without focus on a particular question and identification of a line demarcating sides in the controversy. To be discussed and resolved effectively, controversies must be stated clearly. Vague understanding results in unfocused deliberation and poor decisions, frustration, and emotional distress, as evidenced by the failure of the United States Congress to make progress on the immigration debate during the summer of 2007.¶ Someone disturbed by the problem of the growing underclass of poorly educated, socially disenfranchised youths might observe, "Public schools are doing a terrible job! They are overcrowded, and many teachers are poorly qualified in their subject areas. Even the best teachers can do little more than struggle to maintain order in their classrooms." That same concerned citizen, facing a complex range of issues, might arrive at an unhelpful decision, such as "We ought to do something about this" or, worse, "It's too complicated a problem to deal with." Groups of concerned citizens worried about the state of public education could join together to express their frustrations, anger, disillusionment, and emotions regarding the schools, but without a focus for their discussions, they could easily agree about the sorry state of education without finding points of clarity or potential solutions. A gripe session would follow. But if a precise question is posed—such as "What can be done to improve public education?"—then a more profitable area of discussion is opened up simply by placing a focus on the search for a concrete solution step. One or more judgments can be phrased in the form of debate propositions, motions for parliamentary debate, or bills for legislative assemblies. The statements "Resolved: That the federal government should implement a program of charter schools in at-risk communities" and "Resolved: That the state of Florida should adopt a school voucher program" more clearly identify specific ways of dealing with educational problems in a manageable form, suitable for debate. They provide specific policies to be investigated and aid discussants in identifying points of difference.¶ To have a productive debate, which facilitates effective decision making by directing and placing limits on the decision to be made, the basis for argument should be clearly defined. If we merely talk about "homelessness" or "abortion" or "crime” or "global warming" we are likely to have an interesting discussion but not to establish profitable basis for argument. For example, the statement "Resolved: That the pen is mightier than the sword" is debatable, yet fails to provide much basis for clear argumentation. If we take this statement to mean that the written word is more effective than physical force for some purposes, we can identify a problem area: the comparative effectiveness of writing or physical force for a specific purpose.

Although we now have a general subject, we have not yet stated a problem. It is still too broad, too loosely worded to promote well-organized argument. What sort of writing are we concerned with—poems, novels, government documents, website development, advertising, or what? What does "effectiveness" mean in this context? What kind of physical force is being compared—fists, dueling swords, bazookas, nuclear weapons, or what? A more specific question might be. "Would a mutual defense treaty or a visit by our fleet be more effective in assuring Liurania of our support in a certain crisis?" The basis for argument could be phrased in a debate proposition such as "Resolved: That the United States should enter into a mutual defense treatv with Laurania." Negative advocates might oppose this proposition by arguing that fleet maneuvers would be a better solution. This is not to say that debates should completely avoid creative interpretation of the controversy by advocates, or that good debates cannot occur over competing interpretations of the controversy; in fact, these sorts of debates may be very engaging. The point is that debate is best facilitated by the guidance provided by focus on a particular point of difference, which will be outlined in the following discussion.

# 1NR

### AT: Ontology 1st

#### Ontology doesn’t come first: ontological unity is a mirage and judging the impacts of our actions is key to environmental ethics, and human survival

Norton, 96 – Professor of Philosophy at the Georgia Institute of Technology

Bryan, “Environmental Pragmatism,” Edited by Light and Katz, pg. 106

Thus ends my explanation of, and please for, a practical environmental ethic that seeks to integrate pluralistic principles across multiple levels/dynamics. Rather than reducing pluralistic principles by relating them to an underlying value theory that recognizes only economic preferences or “inherent” value as the ontological stuff that unifies all moral judgments. I have sought integration of multiple values on three irreducible scales of human concern and valuation, choosing pluralism over monism, and attempting to integrate values within an ecologically informed, multi-scalar model of the human habitat. I believe that the non-ontological, pluralistic approach to values can better express the inductively based values and management approach of Leopold’s land ethic, which can be seen as a precursor to the tradition of adaptive management. And, if the problem of environmentalism is the need to support rationally the goals of environmental protection – the problem Callicott misconceived as the need for a realist moral ontology to establish the “objectivity” of environmental goals – then I endorse the broadly Darwinian approach to both epistemology and morals proposed by the American pragmatists. The environmental community is the community of inquirers; it is the community of inquirers that, for better or worse, must struggle, immediately as individuals and indefinitely as a community, both to survive and to know. In this struggle useful knowledge will be information about how to survive in a rapidly evolving culture and habitat. It is in this sense that human actors are a part of multi-layered nature; our actions have impacts on multiple dynamics and multiple scales. We humans will understand our moral responsibilities only if we understand the consequences of our action as they unfold on multiple scales; and the human community will only survive to further evolve and adapt if we learn to achieve individual welfare and justice in the present in ways that are less disruptive of the processes, evolving on larger spatio-temporal scales, essential to human and ecological communities.

#### The alt leads to a failure to consider worldly harms

Graham 99

Phil Graham, Graduate School of Management , University of Queensland, Heidegger’s Hippies: A dissenting voice on the “problem of the subject” in cyberspace, Identities in Action! 1999, http://www.philgraham.net/HH\_conf.pdf

Societies should get worried when Wagner’s music becomes popular because it usually means that distorted interpretations of Nietzsche’s philosophy are not far away. Existentialists create problems about what is, especially identity (Heidegger 1947). Existentialism inevitably leads to an authoritarian worldview: this, my Dionysian world of the eternally self-creating, the eternally self-destroying, this mystery world of twofold voluptuous delight, my “beyond good and evil,” without a goal, unless the joy of the circle itself is a goal; without will, unless a ring feels good will towards itself – do you want a name for this world? A solution to all its riddles? A light for you, too, you best-concealed, strongest, most intrepid, most midnightly men? – This world is the will to power – and nothing besides! And you yourselves are also this will to power – and nothing besides! (Nietzsche 1967/1997). Armed with a volume of Nietzsche, some considerable oratory skills, several Wagner records, and an existentialist University Rector in the form of Martin Heidegger, Hitler managed some truly astounding feats of strategic identity engineering (cf. Bullock, 1991). Upon being appointed to the Freiberg University, Heidegger pronounced the end of thought, history, ideology, and civilisation: ‘No dogmas and ideas will any longer be the laws of your being. The Fuhrer himself, and he alone, is the present and future reality for Germany’ (in Bullock 1991: 345). Heidegger signed up to an ideology-free politics: Hitler’s ‘Third Way’ (Eatwell 1997). The idealised identity, the new symbol of mythological worship, Nietzsche’s European Superman, was to rule from that day hence. Hitler took control of the means of propaganda: the media; the means of mental production: the education system; the means of violence: the police, army, and prison system; and pandered to the means of material production: industry and agriculture; and proclaimed a New beginning and a New world order. He ordered Germany to look forward into the next thousand years and forget the past. Heidegger and existentialism remain influential to this day, and history remains bunk (e.g. Giddens4, 1991, Chapt. 2). Giddens’s claims that ‘humans live in circumstances of … existential contradiction’, and that ‘subjective death’ and ‘biological death’ are somehow unrelated, is a an ultimately repressive abstraction: from that perspective, life is merely a series of subjective deaths, as if death were the ultimate motor of life itself (cf. Adorno 1964/1973). History is, in fact, the simple and straightforward answer to the “problem of the subject”. “The problem” is also a handy device for confusing, entertaining, and selling trash to the masses. By emphasising the problem of the ‘ontological self’ (Giddens 1991: 49), informationalism and ‘consumerism’ confines the navel-gazing, ‘narcissistic’ masses to a permanent present which they self-consciously sacrifice for a Utopian future (cf. Adorno 1973: 303; Hitchens 1999; Lasch 1984: 25-59). Meanwhile transnational businesses go about their work, raping the environment; swindling each other and whole nations; and inflicting populations with declining wages, declining working conditions, and declining social security. Slavery is once again on the increase (Castells, 1998; Graham, 1999; ILO, 1998). There is no “problem of the subject”, just as there is no “global society”; there is only the mass amnesia of utopian propaganda, the strains of which have historically accompanied revolutions in communication technologies. Each person’s identity is, quite simply, their subjective account of a unique and objective history of interactions within the objective social and material environments they inhabit, create, and inherit. The identity of each person is their most intimate historical information, and they are its material expression: each person is a record of their own history at any given time. Thus, each person is a recognisably material, identifiable entity: an identity. This is their condition. People are not theoretical entities; they are people. As such, they have an intrinsic identity with an intrinsic value. No amount of theory or propaganda will make it go away. The widespread multilateral attempts to prop up consumer society and hypercapitalism as a valid and useful means of sustainable growth, indeed, as the path to an inevitable, international democratic Utopia, are already showing their disatrous cracks. The “problem” of subjective death threatens to give way, once again, to unprecedented mass slaughter. The numbed condition of a narcissistic society, rooted in a permanent “now”, a blissful state of Heideggerian Dasein, threatens to wake up to a world in which “subjective death” and ontology are the least of all worries.

### AT: VTL

### The aff’s totalizing claims are violent – only individuals can assign their own value to life

Lisa Schwartz, 2002, “A Value to Life: Who Decides and How?” Chapter 6, Medical Ethics: A Case-Based Approach, www.fleshandbones.com/readingroom/pdf/399.pdf

Those who choose to reason on this basis hope that if the quality of a life can be measured then the answer to whether that life has value to the individual can be determined easily. This raises special problems, however, because the idea of quality involves a value judgement, and value judgements are, by their essence, subject to indeterminate relative factors such as preferences and dislikes. Hence, quality of life is difficult to measure and will vary according to individual tastes, preferences and aspirations. As a result, no general rules or principles can be asserted that would simplify decisions about the value of a life based on its quality. Nevertheless, quality is still an essential criterion in making such decisions because it gives legitimacy to the possibility that rational, autonomous persons can decide for themselves that their own lives either are worth, or are no longer worth, living. To disregard this possibility would be to imply that no individuals can legitimately make such value judgements about their own lives and, if nothing else, that would be counterintuitive. 2 In our case, Katherine Lewis had spent 10 months considering her decision before concluding that her life was no longer of a tolerable quality. She put a great deal of effort into the decision and she was competent when she made it. Who would be better placed to make this judgement for her than Katherine herself? And yet, a doctor faced with her request would most likely be uncertain about whether Katherine’s choice is truly in her best interest, and feel trepidation about assisting her. We need to know which 110 Medical ethics: a case-based approach considerations can be used to protect the patient’s interests. The quality of life criterion asserts that there is a difference between the type of life and the fact of life. This is the primary difference between it and the sanctity criterion discussed on page 115. Among quality of life considerations rest three assertions: 1. there is relative value to life 2. the value of a life is determined subjectively 3. not all lives are of equal value. Relative value The first assertion, that life is of relative value, could be taken in two ways. In one sense, it could mean that the value of a given life can be placed on a scale and measured against other lives. The scale could be a social scale, for example, where the contributions or potential for contribution of individuals are measured against those of fellow citizens. Critics of quality of life criteria frequently name this as a potential slippery slope where lives would be deemed worthy of saving, or even not saving, based on the relative social value of the individual concerned. So, for example, a mother of four children who is a practising doctor could be regarded of greater value to the community than an unmarried accountant. The concern is that the potential for discrimination is too high. Because of the possibility of prejudice and injustice, supporters of the quality of life criterion reject this interpersonal construction in favour of a second, more personalized, option. According to this interpretation, the notion of relative value is relevant not between individuals but within the context of one person’s life and is measured against that person’s needs and aspirations. So Katherine would base her decision on a comparison between her life before and after her illness. The value placed on the quality of a life would be determined by the individual depending on whether he or she believes the current state to be relatively preferable to previous or future states and whether he or she can foresee controlling the circumstances that make it that way. Thus, the life of an athlete who aspires to participate in the Olympics can be changed in relative value by an accident that leaves that person a quadriplegic. The athlete might decide that the relative value of her life is diminished after the accident, because she perceives her desires and aspirations to be reduced or beyond her capacity to control. However, if she receives treatment and counselling her aspirations could change and, with the adjustment, she could learn to value her life as a quadriplegic as much or more than her previous life. This illustrates how it is possible for a person to adjust the values by which they appraise their lives. For Katherine Lewis, the decision went the opposite way and she decided that a life of incapacity and constant pain was of relatively low value to her. It is not surprising that the most vociferous protesters against permitting people in Katherine’s position to be assisted in terminating their lives are people who themselves are disabled. Organizations run by, and that represent, persons with disabilities make two assertions in this light. First, they claim that accepting that Katherine Lewis has a right to die based on her determination that her life is of relatively little value is demeaning to all disabled people, and implies that any life with a severe disability is not worth The value of life: who decides and how? 111 Write a list of three things that make your life worth living and ask someone else to do the same. Compare your lists. Are they identical? Why? Are they not identical? Why not? living. Their second assertion is that with proper help, over time Katherine would be able to transform her personal outlook and find satisfaction in her life that would increase its relative value for her. The first assertion can be addressed by clarifying that the case of Katherine Lewis must not be taken as a general rule. Deontologists, who are interested in knowing general principles and duties that can be applied across all cases would not be very satisfied with this; they would prefer to be able to look to duties that would apply in all cases. Here, a case-based, context-sensitive approach is better suited. Contextualizing would permit freedom to act within a particular context, without the implication that the decision must hold in general. So, in this case, Katherine might decide that her life is relatively valueless. In another case, for example that of actor Christopher Reeve, the decision to seek other ways of valuing this major life change led to him perceiving his life as highly valuable, even if different in value from before the accident that made him a paraplegic. This invokes the second assertion, that Katherine could change her view over time. Although we recognize this is possible in some cases, it is not clear how it applies to Katherine. Here we have a case in which a rational and competent person has had time to consider her options and has chosen to end her life of suffering beyond what she believes she can endure. Ten months is a long time and it will have given her plenty of opportunity to consult with family and professionals about the possibilities open to her in the future. Given all this, it is reasonable to assume that Katherine has made a well-reasoned decision. It might not be a decision that everyone can agree with but if her reasoning process can be called into question then at what point can we say that a decision is sound? She meets all the criteria for competence and she is aware of the consequences of her decision. It would be very difficult to determine what arguments could truly justify interfering with her choice. Subjective determination The second assertion made by supporters of the quality of life as a criterion for decisionmaking is closely related to the first, but with an added dimension. This assertion suggests that the determination of the value of the quality of a given life is a subjective determination to be made by the person experiencing that life. The important addition here is that the decision is a personal one that, ideally, ought not to be made externally by another person but internally by the individual involved. Katherine Lewis made this decision for herself based on a comparison between two stages of her life. So did James Brady. Without this element, decisions based on quality of life criteria lack salient information and the patients concerned cannot give informed consent. Patients must be given the opportunity to decide for themselves whether they think their lives are worth living or not. To ignore or overlook patients’ judgement in this matter is to violate their autonomy and their freedom to decide for themselves on the basis of relevant information about their future, and comparative consideration of their past. As the deontological position puts it so well, to do so is to violate the imperative that we must treat persons as rational and as ends in themselves. It is important to remember the subjectivity assertion in this context, so as to emphasize that the judgement made about the value of a life ought to be made only by the person concerned and not by others. Of course, this presumes that the person deciding is conscious and competent to make the decision at all, which is especially complicated in cases when the patient is unconscious, immature or suffering from a mental illness, such as depression, that could distort their decisionmaking abilities. Thus, seeking patient choice is not always a viable option. Not all patients are capable of choosing for themselves. In Janet Johnstone’s case, and in the similar case 112 Medical ethics: a case-based approach of Tony Bland, the decision was made externally, by people involved in their care. In such situations, family or practitioners have been known to make the decision on behalf of the incompetent patient, usually because they claim to know what the patient in question would have wanted. Relatives and doctors of Janet Johnstone argued that her condition lacked the dignity and control she valued, and that her situation would not improve. Under the circumstances, the judge decided the quality of her life was so diminished that her life was no longer worth living and that Ms Johnstone herself would have reached the same conclusion. The same sort of proxy decision making occurs when a woman, or couple, decide to terminate a pregnancy based on antenatal screening and testing. Here, parents make the decision on behalf of a fetus or a child. In such cases the parents must decide if, on balance, their child’s life is worth living given the possibility of pain and suffering or such inhibited interaction with the world that it would be of no value to the person living it. Needless to say, this is a difficult and trying dilemma for anyone to face. It also introduces a concern that underlies all prenatal screening

programmes, in that these are supported by the social values implied by screening, which direct women towards termination of positive tested pregnancies.3 In the past, women were barred from screening and testing for similar conditions if they had previously decided that they would not terminate a pregnancy if the fetus carried the genetic condition. Hence screening was meant to be followed by testing, and positive results were meant to be followed by termination of pregnancy. The conclusion this yields, like it or not, is that our screening programmes carry with them an implication that the lives of those who are affected with certain conditions ought to be terminated because they are of comparatively less value than the lives of those who are not. This is supported in law by Wrongful Life suits in which parents of people born with screenable genetic conditions, such as spina bifida, have successfully sued doctors for the burden involved in caring for those born with such conditions.4 The problems associated with screening will be discussed elsewhere in Chapter 8 (p. 146–147). They are significant here because they elucidate the third assertion made by supporters of quality of life considerations in the medical context. Equal or unequal value? The third assertion is that, as a result of subjective and relative determinations about the quality of a life, lives can be seen to be of unequal value. At the extreme, it follows that it is possible to describe a life as valueless, especially when it is compared with the value of a life that has greater quality. In the case of the unborn fetus affected by a debilitating inherited condition, the welfare of the parents and their other children can be invested with greater value than the potential good of a potential child born with a severe disability. This allows us to make relative judgements among or between lives of individuals or groups. This is especially useful in healthcare economics, where decisions about distribution of resources rely on comparative information of the effectiveness of treatments. In this way it can be determined that resources will be made available for treatments that are more effective at improving quality of life in The value of life: who decides and how? 113 Case 24 Screening/testing for Down syndrome A 42-year-old woman presented at an antenatal clinic with her husband to discuss the results of her recent amniocentesis. In addition to Down syndrome, echocardiography of the fetus showed cardiac abnormalities, including atrioventricular septal defect. After extensive discussion between the parents and the obstetrician, the parents decided that the fetus had too many problems and that it would be unfair to the unborn child and to their other four children to continue with the pregnancy. particular conditions and not where the quality of life is not improved or so diminished that improvements are too small to justify. This point will be developed more fully in the section on quality-adjusted life-years (QALYs) and rationing in Chapter 9 (p. 163). Here, it is important to point to the possibility of making comparative judgements based on assessments of the quality of life and to emphasize that such judgements can be used to inform decisions about distributing and rationalizing scarce resources. As a result, there is a concern about quality of life decisions being made for others without their participation, and about decisions imposed without their consent. Both these concerns are tempered by the second assertion of the quality of life ethic. This states that value must be personally assessed by the individual concerned, and imposed externally only in extreme circumstances where patients are unable to decide on their own behalf and their wishes can be reasonably determined. An advance directive can be highly useful in the latter case.

### Nuclear

#### 3. A. Nuclear war causes massive ozone depletion

Sagan and Turco in ‘90

(Carl, David Duncan Professor of Astronomy and Space Sciences at Cornell, and Richard, Professor of Atmospheric Sciences at UCLA, “A Path Where No Man Thought: Nuclear Winter and the End of the Arms Race”, p. 57)

But in a nuclear war, the atmosphere would be so perturbed that our normal way of thinking about the ozone layer needs to be modified. To help refocus our understanding, several research groups have constructed models that describe the ozone layer following nuclear war. The principal work has been carried out by research teams at the National Center for Atmospheric Research and at the Los Alamos National Laboratory (ref. 4.9). Both find that there is an additional mechanism by which nuclear war threatens the ozone layer. With massive quantities of smoke injected into the lower atmosphere by the fires of nuclear war, nuclear winter would grip not only the Earth's surface, but the high ozone layer as well. The severely disturbed wind currents caused by solar heating of smoke would, in a matter of weeks, sweep most of the ozone layer from the northern midlatitudes deep into the Southern Hemisphere. The reduction in the ozone layer content in the North could reach a devastating 50% or more during this phase. As time progressed, the ozone depletion would be made still worse by several effects: injection of large quantities of nitrogen oxides and chlorine-bearing molecules along with the smoke clouds; heating of the ozone layer caused by intermingling of hot smoky air (as air is heated, the amount of ozone declines); and decomposition of ozone directly on smoke particles (carbon particles are sometimes used down here near the ground to cleanse air of ozone).

#### B. Ozone depletion causes extinction

Greenpeace in ‘95

(“Full of Homes: The Montreal Protocol and the Continuing Destruction of the Ozone Layer, http://archive.greenpeace.org/ozone/holes/holebg.html)

When chemists Sherwood Rowland and Mario Molina first postulated a link between chlorofluorocarbons and ozone layer depletion in 1974, the news was greeted with scepticism, but taken seriously nonetheless. The vast majority of credible scientists have since confirmed this hypothesis.

 The ozone layer around the Earth shields us all from harmful ultraviolet radiation from the sun. Without the ozone layer, life on earth would not exist. Exposure to increased levels of ultraviolet radiation can cause cataracts, skin cancer, and immune system suppression in humans as well as innumerable effects on other living systems. This is why Rowland's and Molina's theory was taken so seriously, so quickly - the stakes are literally the continuation of life on earth

#### Nuclear war destroys the ecosystem and biodiversity though destruction of plant resources

Ehrlich et al, 1983 (Paul R. Ehrlich, Stanford University; Mark A. Harwell, Cornell University; Carl Sagan, Cornell University; Anne H. Ehrlich, Stanford University; Stephen J. Gould, Harvard University; biologists on the Long-Term Worldwide Biological Consequences of Nuclear War (Cambridge, Massachusetts, 25 and 26 April 1983)., Science, New Series, Vol. 22, No. 4630, Dec. 23, 1983, pg 1293-1300, jstor)

The 2 billion to 3 billion survivors of the immediate effects of the war would be forced to turn to natural ecosystems as organized agriculture failed. Just at the time when these natural ecosystems would be asked to support a human population well beyond their carrying capacities, the normal functioning of the ecosystems themselves would be severely curtailed by the effects of nuclear war. Subjecting these ecosystems to low temperature, fire, radiation, storm, and other physical stresses (many occurring simultaneously) would result in their increased vulnerability to disease and pest outbreaks, which might be prolonged. Primary productivity would be dramatically reduced at the prevailing low light levels; and, because of UV-B, smog, insects, radiation, and other damage to plants, it is unlikely that it would recover quickly to normal levels, even after light and temperature values had recovered. At the same time that their plant foods were being limited severely, most, if not all, of the vertebrates not killed outright by blast and ionizing radiation would either freeze or face a dark world where they would starve or die of thirst because surface waters would be frozen and thus unavailable. Many of the survivors would be widely scattered and often sick, leading to the slightly delayed extinction of many additional species. Natural ecosystems provide civilization with a variety of crucial services in addition to food and shelter. These include regulation of atmospheric composition, moderation of climate and weather, regulation of the hydrologic cycle, generation and preservation of soils, degradation of wastes, and recycling of nutrients. From the human perspective, among the most important roles of ecosystems are their direct role in providing food and their maintenance of a vast library of species from which Homo sapiens has already drawn the basis of civilization (27). Accelerated loss of these genetic resources through extinction would be one of the most serious potential consequences of nuclear war. Wildfires would be an important effect in north temperate ecosystems, their scale and distribution depending on such factors as the nuclear war scenario and the season. Another major uncertainty is the extent of fire storms, which might heat the lower levels of the soil enough to damage or destroy seed banks, especially in vegetation types not adapted to periodic fires. Multiple airbursts over seasonally dry areas such as California in the late summer or early fall could burn off much of the state's forest and brush areas, leading to catastrophic flooding and erosion during the next rainy season. Silting, toxic runoff, and rainout of radio- nuclides could kill much of the fauna of fresh and coastal waters, and concentrated radioactivity levels in surviving filter-feeding shellfish populations could make them dangerous to consume for long periods of time. Other major consequences for terrestrial ecosystems resulting from nuclear war would include: (i) slower detoxification of air and water as a secondary result of damage to plants that now are important metabolic sinks for toxins; (ii) reduced evapotranspiration by plants contributing to a lower rate of entry of water into the atmosphere, especially over continental regions, and therefore a more sluggish hydrologic cycle; and (iii) great disturbance of the soil surface, leading to accelerated erosion and, probably, major dust storms (28). Revegetation might superficially resemble that which follows local fires. Stresses from radiation, smog, erosion, fugitive dust, and toxic rains, however, would be superimposed on those of cold and darkness, thus delaying and modifying postwar succession in ways that would retard the restoration of ecosystem services (29). It is likely that most ecosystem changes would be short term. Some structural and functional changes, however, could be longer term, and perhaps irreversible, as ecosystems undergo qualitative changes to alternative stable states (30). Soil losses from erosion would be serious in areas experiencing widespread fires, plant death, and extremes of climate. Much would depend on the wind and precipitation patterns that would develop during the first postwar year (4, 5). The diversity of many natural communities would almost certainly be substantially reduced, and numerous species of plants, animals, and microorganisms would become extinct.

#### Nuclear war collapses global infrastructure and causes mass disease pandemics

Sagan, Former Professor of Astronomy at Harvard University, 1985, (Carl, “The Nuclear Winter,” http://www.cooperativeindividualism.org/sagan\_nuclear\_winter.html)

In addition, the amount of radioactive fallout is much more than expected. Many previous calculations simply ignored the intermediate time-scale fallout. That is, calculations were made for the prompt fallout -- the plumes of radioactive debris blown downwind from each target-and for the long-term fallout, the fine radioactive particles lofted into the stratosphere that would descend about a year later, after most of the radioactivity had decayed. However, the radioactivity carried into the upper atmosphere (but not as high as the stratosphere) seems to have been largely forgotten. We found for the baseline case that roughly 30 percent of the land at northern midlatitudes could receive a radioactive dose greater than 250 rads, and that about 50 percent of northern midlatitudes could receive a dose greater than 100 rads. A 100-rad dose is the equivalent of about 1000 medical X-rays. A 400-rad dose will, more likely than not, kill you. The cold, the dark and the intense radioactivity, together lasting for months, represent a severe assault on our civilization and our species. Civil and sanitary services would be wiped out. Medical facilities, drugs, the most rudimentary means for relieving the vast human suffering, would be unavailable. Any but the most elaborate shelters would be useless, quite apart from the question of what good it might be to emerge a few months later. Synthetics burned in the destruction of the cities would produce a wide variety of toxic gases, including carbon monoxide, cyanides, dioxins and furans. After the dust and soot settled out, the solar ultraviolet flux would be much larger than its present value. Immunity to disease would decline. Epidemics and pandemics would be rampant, especially after the billion or so unburied bodies began to thaw. Moreover, the combined influence of these severe and simultaneous stresses on life are likely to produce even more adverse consequences -- biologists call them synergisms -- that we are not yet wise enough to foresee.

#### Management is inevitable – it’s only a question of what kind of intervention is used. Past interventions will result in extinction unless actively reversed.

Levy 99- PhD @ Centre for Critical Theory at Monash

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

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

### Solar

## Case

### AT: Rocks are People

#### Solidifies the human/nature divide by treating humans as uniquely responsible for “observing” the cosmos while other entities can act.

Harman, 2005 (Graham, critically acclaimed Heidegger scholar who spent 10 years reading everything Heidegger wrote [even in German,] Associate Provost for Research Administration at the American University of Cairo, “Guerrilla Metaphysics: Phenomenology and the Carpentry of Things,” p. 241-245)

The theme of representation is one of the recurrent problems of philosophy. Certain special entities known as sentient organisms are granted a unique ability to perceive images of the world, rather than merely responding to it with blind causal force as subsentient entities are supposed to do. The hermeneutic school ofHeidegger and his successors claims to have left the problem of representation in the past. For hermeneutics there is supposedly no magical gap between humans and the world, since humans are always already involved with objects, and hence there is no pure representation of the world free of the prior interpretation and use of objects. In one sense this is a clear step forward, but in another it yields no progress at all. For **with the notion that human beings are rooted in a specific factical life rather than standing at a distance from the world** and observing bloodless images of it, **we** do **come** one step **closer to dethroning the privilege of human beings in philosophy. Yet hermeneutics** **still ascribes to humans** (and perhaps even to animals) **an apparently miraculous power**: the ability to convert the sheer impact of the world into pictures or simulacra of such impact. **Humans still transcend the world and contemplate it,** even if only partially, and this makes humans different in kind from mere paper, sand, or gold. It is still humans alone who can perceive the world, and **the philosophical gap between sentient and inanimate** or object and appearance **is still taken as a given. T**his in itself would not be so bad, since most of us would willingly concede important differences in the structure of conscious and unconscious objects. But the question is whether the gap between conscious and unconscious entities is so unspeakably vast that it needs to be built into the very foundation of ontology in a way that the chasms between mammal and reptile or plant and fungus never are. For hermeneutics, **there is** still **an absolute gulf between two types of entities, with humans** and possibly animals **on one side and all remaining objects on the other**. A crucial ontological structure-the as-structure-is ascribed to certain entities and denied to others. But this means that Heidegger grounds his ontology in an ontic rift between specific types of objects. And in fact, he has no hope of explaining how the as-structure magically arises only for certain objects and not others. Nor does he ever attempt such an explanation. I have suggested that the real stakes in ontology lie at a far more primitive level than any of the well-known special properties of human being. The as-structure is found even in inanimate matter; the dual axes of the world are everywhere and not just in some anxious, mournful human space that would exclude such supposed inferiors as almonds and glass. **One possible antidote** to this bias would **be to embrace panpsychism and claim** that **even rocks and** milkweed must already **show** crude traces of **cognitive power**. Such doctrines are now wildly out of fashion, and are generally exiled to the wastelands and gullies of the philosophical world, the eternal homeland of renegades, outliers, pariahs, hermits, vagabonds, and unemployable cranks. It would take a short memory to think that such theories will remain unfashionable forever: most abandoned concepts return someday in modified form, as the crop rotation of history brings every fallow field back to life sooner or later. Yet **reviving panpsychism would not solve our current problem, since this** refreshingly freewheeling theory **actually preserves the central problem of human-centered philosophy**: namely, **it still assumes that cognition is something so poignantly special that ontology cannot live without it**. After all, **no one ever claims that inanimate matter must possess other human features** in germinal form, **such as five-fingered hands, a spinal cord, taste buds, laughter, or musical skill. I have yet to hear anyone speculate that rocks** and maple sap **display** a primitive form of **language**. In this respect, even philosophical cranks have proven themselves to have limited imaginations. For some reason it is **sentient perception alone** that **is deemed so important that certain fringe schools allow it to balloon into an ontological feature of objects** as a whole. And **this merely displays the well-worn assumption that there is something magically unique** and inexplicable about **the ability to create images of things** rather than merely submitting to their blows. When hunters and gatherers came to develop agriculture, few historians deny that this change is of staggering importance for human history. This shift is much more than a difference of degree: it is a revolution that triggers the unforeseen rise of cities, armies, monarchies, and bureaucratic specialists. Even so, no one tries to convert agricultural life into some sort of magic ontological principle; no philosopher carves up reality into entities that farm and entities that do not. **When birds first developed wings** at some point in their evolutionary history, **this was a crucial shift that opened a new reality** and new lifestyle to these creatures, inviting them for the first time to long-distance migration and the building of nests in trees. **Despite this** landmark step in the history of animals, **no philosopher sees the gap between winged and nonwinged creatures as immeasurably vast. No school** of "panpterists􀈐' **steps forth to claim that even dirt** and sunlight **must have wings** in some imperceptible, germinal form. Heidegger makes an important mistake by locating one of his pivotal ontological features (the as-structure) in certain kinds of objects at the expense of others. For him, only one kind of entity transcends, nihilates, or rises above the world to see it "as" what it is, and that entity is human Dasein. To use a term that Heidegger himself avoids, only one kind of entity is conscious, and for this reason the very existence of human beings is supposed to introduce a vital cleft into being itself. **This is** not only **a typical case of human arrogance** in philosophy, but **also has an air of voodoo** or fetish **about it-like some tribal myth in which the world was a lifeless soil until sprinkled with talking magic beans. We will never overcome this** voodoo ontology **by joining forces with the panpsychists and demanding that the special powers of human consciousness also be divvied up among dust**, cactus, water, **and melons. Instead, we overcome it only by denying that the special features of human consciousness are built into** the heart of **ontology at all. The history of the universe is packed with numerous fateful revolutions**: the emergence of the heavier elements from hydrogen; **the birth of solar systems**; the breakup of Pangaea into multiple continents; **the emergence of muticellular life, the beaks of birds**, and the gills of fish; the first dreams in early animals; **the domestication of cows** and dogs; the shift from papyrus to paper; navigation across open sea rather than playing it safe along the coasts; **electricity and telephones**; phenomenology, quantum theory, **and psychoanalysis**; the atomic bomb, smart weapons, credit cards, steam engines, atonal music, internal combustion, and blood transfusions. My claim is that **sentient consciousness**, human theory, **and language all belong on the same list with these other examples, and not on some sanctified ontological throne** from which they might proclaim that conscious images of the world are infinitely different from the inanimate causal impacts of that world. **There is no absolute gap between objects and images, but only ubiquitous gaps between one object and the next.** Images are merely sensual objects, and sensual objects lie always and only on the interior of real ones.

### AT: Root Cause

#### Hindsight is blinding – claims of “inevitability” are over-determined and diminish our ability to isolate alternative pathways

Scott D. Sagan – Political Science, Stanford –2000, ACCIDENTAL WAR IN THEORY AND PRACTICE – available via: [www.sscnet.ucla.edu/polisci/faculty/trachtenberg/cv/sagan.doc](http://www.sscnet.ucla.edu/polisci/faculty/trachtenberg/cv/sagan.doc)

To make reasonable judgements in such matters it is essential, in my view, to avoid the common "fallacy of overdetermination." Looking backwards at historical events, it is always tempting to underestimate the importance of the immediate causes of a war and argue that the likelihood of conflict was so high that the war would have broken out sooner or later even without the specific incident that set it off. If taken too far, however, this tendency eliminates the role of contingency in history and diminishes our ability to perceive the alternative pathways that were present to historical actors. The point is perhaps best made through a counterfactual about the Cold War. During the 1962 Cuban Missile Crisis, a bizarre false warning incident in the U.S. radar systems facing Cuba led officers at the North American Air Defense Command to believe that the U.S. was under attack and that a nuclear weapon was about to go off in Florida. Now imagine the counterfactual event that this false warning was reported and believed by U.S. leaders and resulted in a U.S. nuclear "retaliation" against the Russians. How would future historians have seen the causes of World War III? One can easily imagine arguments stressing that the war between the U.S. and the USSR was inevitable. War was overdetermined: given the deep political hostility of the two superpowers, the conflicting ideology, the escalating arms race, nuclear war would have occurred eventually. If not during that specific crisis over Cuba, then over the next one in Berlin, or the Middle East, or Korea. From that perspective, focusing on this particular accidental event as a cause of war would be seen as misleading. Yet, we all now know, of course that a nuclear war was neither inevitable nor overdetermined during the Cold War.

####  “Methods” don’t kill people, people kill people – The fact that something could or has caused something bad in the past does not mean it will necessarily cause it again – we must accept responsibility for initiating proximate causes

Curtler ’97 (Hugh Mercer, Prof. Phil. – Southwest State U. “Rediscovering values: coming to terms with Postmodernism”, Netlibrary, p. 164-165)

At the same time, we must beware the temptation to reject out of hand everything that stinks of modernism and the Enlightenment. We must resist the postmodern urge to reject and reduce in the conviction that everything Western humans thought prior to 1930 leads inevitably to the Holocaust and its aftermath and that every exemplary work of art and literature diminishes the human soul. In particular, we must maintain a firm hold on our intellectual center and, while acknowledging the need for greater compassion and heightened imaginative power, also acknowledge our need for reasonable solutions to complex issues. Indeed, the rejection of reason and "techno-science" as it is voiced by such thinkers as Jean-François Lyotard seems at times little more than resentment born of a sense of betrayal: "it is no longer possible to call development progress" (Lyotard 1992, 78). Instead, modernism has given us Auschwitz. Therefore, we will blame reason and science as the vehicles that have brought us to this crisis. Reason has yielded technology, which has produced nuclear weapons, mindless diversions, and choking pollution in our cities while enslaving the human spirit. Therefore, we reject reason. This is odd logic. Reason becomes hypostatized and is somehow guilty of having made false promises. The fault may not lie with our tools or methods, however, but with the manner in which we adapted them and the tasks we demanded they perform. That is to say, the problem may lie not with our methods but with ourselves. At times, one wonders whether thinkers such as Lyotard read Dostoyevsky, Freud, or Jung, whether they know anything about human depravity. Science is not at fault; foolish men and women (mostly men) who have expected the impossible of methods that were designed primarily to solve problems are at fault. We cannot blame science because we have made of it an idol. Lyotard was correct when he said that "scientific or technical discovery was never subordinate to demands arising from human needs. It was always driven by a dynamic independent of the things people might judge desirable, profitable, or comfortable" (Lyotard 1992, 83). But instead of focusing attention on the "dynamic," he chooses to reject the entire techno-scientific edifice. This is reactionary. We face serious problems, and the rejection of science and technology will lead us back to barbarism, not to nirvana. What is required is a lesson in how to control our methods and make them serve our needs. Thus, although one can sympathize with the postmodern attack on scientific myopia, one must urge caution in the face of hysteria. There are additional problems with postmodernism, however.

### Energy Good

#### Expansion of solar power now

Kelly-Detwiler, 12/11 --- writes about energy technologies and policies (Peter, “Solar's Steady March: New Installation Figures Are Out,”

http://www.forbes.com/sites/peterdetwiler/2012/12/11/solars-steady-march/)

It seems that nearly weekly we hear more good news on the solar energy front. Today, the Solar Energy Industries Association and GTM Research released their Solar Market Insight Report for Q3 2012, with a summary of accomplishments year to date. The progress is impressive and would have been unimaginable just five years ago. Furthermore, the growth is expected to continue for the next several years, jumping from 3.2 GW in 2012 to 7.8 GW by 2015. Some highlights from the report:

 By the end of 2012, an estimated 3.2 gigawatts (GW – or 3,200 megawatts) of solar power will have been installed – an increase of 70% over last year.

 The multi-year pipeline for solar-scale programs is finally reaching fruition, with some very large projects coming on line.

 California, New Jersey, and Arizona are leading the charge.

 Solar costs have fallen by over 30% in the past two years.

One of the macro factors driving this expansion is the vast overcapacity currently affecting markets. It is estimated that panel manufacturing capacity currently outpaces demand by a factor of over two to one (70 GW to 31 GW). This lack of equilibrium cannot last forever and should result in more plant closures – especially since global demand is growing at 14%. It will be interesting to see what happens to prices once supply-demand equilibrium gets back in balance.

Another dynamic worth observing is that the markets are incentive-driven and highly balkanized. For example, New Jersey, with its perhaps overly exuberant rebates, is slowing down, as is Massachusetts. At the same time, other markets ramp up. Overall, though, the year-over-year increase has been remarkable.

 U.S. PV Installations by Market Segment, Q1 2010 to Q3 2012

One big force driving demand is the fact that 21 utility-scale projects – ranging in size from 300kW to 115 MW – were completed in Q3 of 2012. Looking at the pipeline going forward, these numbers will grow for another two years as projects in development move to completion. But once that “pig moves through the python,” the numbers are forecast to fall off significantly. There are just not that many new power purchase agreements (PPAs) being signed. These utility-scale projects have led all sectors in pricing improvements, but every sector has benefited over the past two years as panel prices fall while efficiencies in installation costs kick in.

Average Installed Price by Market Segment, Q1 2011 – Q3 2012

So what does the future look like? SEIA and GTM Research forecast continued aggressive growth for the foreseeable future. From a figure of 1.9 GW in 2011, the installed capacity is expected to increase four-fold in just five years. It is pretty unlikely that this trajectory can continue at that pace. However, even if it slows significantly, or levels out, that’s a good deal of new capacity.

PV Installation Forecast, 2010-2016E

At the same time, the advance of technology also continues. Just last week, San Jose-based Solar Junction announced a new world record conversion efficiency (verified by the National Renewable Energy Laboratory) of 44% for a production–ready photovoltaic solar cell. The company notes that it has an order for 5 MW of its product, and is commissioning a manufacturing facility that will ship product in early 2013.

Between the improved conversion efficiencies, manufacturing gains, decreased inverter costs and improvements in other balance of system (BOS) costs, there is still room for substantial price improvement. The US Department of Energy’s SunShot Initiative has a goal of making PV cost-competitive without incentives by reducing total PV costs by approximately 75% between 2010 and 2020.

With costs down an estimated 30% over two years, significant progress has already been made. Even in the absence of new technological gains, the experience of other countries suggest that the hoped-for Sunshot cost efficiencies may well be achievable. A comparison of US residential and commercial systems installed in 2011 vs German systems quoted (not perfectly comparable data, but helpful for analysis of trends), show big price differentials. Under 10 kW, the installed price per watt is $6.13 vs $3.40, a difference of $2.73 (or 45%). For systems between 10 and 100 kW, the delta narrows to $$2.52 (still 45%). For systems in excess of 100 kW, the figure decreases to $2.27 (or 47%).

All of the recently available data thus continues to point us in the same direction The march of solar energy is sustained, steady, and likely to make great strides in the years to come.

#### Solar solves grid failure HIGHLIGHT DOWN

Mendonça et al 9

(Miguel Mendonça. Researcher, author and advocate of sustainability and resilience strategies. David Jacobs is a researcher and PhD candidate at the Environmental Policy Research Centre in Berlin (FFU) focusing on support mechanisms for renewable electricity. Dr. Benjamin K. Sovacool is an Assistant Professor at the Lee Kuan Yew School of Public Policy at the National University of Singapore. He is also a Research Fellow in the Energy Governance Program at the Centre on Asia and Globalization. (Powering the Green Economy: The Feed-in Tariff Handbook, p. 112-8))

To penalize renewables for their variability or intermittency not only ignores how that variability can be mitigated, it also obscures equal amounts of variability inherent in conventional fossil fuel and nuclear resources. All electricity systems must respond to the complex interplay of constantly changing supply and demand. They are subject to unexpected failures and outages and influenced by a large number of planned and unplanned events. Daily load variances occur, as routine practices reinforce the effects of changing from day to night, such as turning lights on, raising indoor temperature when waking up, taking showers before breakfast, cooking in the dinner hour and washing dishes, or charging electric vehicles at night. Over the course of a week, energy use changes as the weekend approaches and, throughout the year, as seasonal differences in temperature and climate occur. While it is certainly true that the output from conventional power plants can be measured quite accurately, researchers from the Lawrence Berkeley National Laboratory and the American Council for an Energy-Efficient Economy noted that virtually ‘every other aspect of planning for and implementing that resource is riddled with uncertainty’ (Vine et al, 2007). Four types of uncertainty are most common: unexpected outages, variance in construction costs, variance in demand forecasts, and transmission and distribution vulnerability. And, perhaps surprisingly, renewable power plants address each of these types of variability better than conventional units: 1 Let us begin by discussing the unplanned outages for conventional units. The average coal plant operating on the market today is out of service 10– 15 per cent of the time (Sovacool, 2009). Looking at the performance of conventional generators in the US from 2000 to 2004, the North American Electric Reliability Corporation found that plants shut down for scheduled maintenance 6.5 per cent of the year and require unscheduled maintenance or experience forced outages another 6 per cent of the year. Their study noted that conventional output is guaranteed on average only 87.5 per cent of the time in the US, with a range of 79–92 per cent (NERC, 2005). To cope with the variability of conventional units, system operators must operate a 15 per cent reserve margin of extra capacity, much of which is continually fuelled and spinning ready for instant use. Nuclear plants are not much better. One survey of nuclear power plant operating performance for US, French, Belgian, German, Swedish and Swiss reactors found mean durations of continual operation from 35 to 88 days (Perin, 1998). In other words, the average plant only operated one to three months without some sort of unplanned outage event, half of which were related to equipment failure. Of all 132 nuclear power plants built in the US (only 52 per cent of the 253 originally planned), almost one-quarter (21 per cent) were permanently and prematurely closed due to reliability or cost problems, and 27 more have failed for a year or more at least once (Lovins et al, 2008). Even reliably operating nuclear plants must shut down 39 days every 17 months for refuelling and scheduled maintenance. They must also shut down during blackouts, and then take incredibly long times to restart. During the August 2003 blackout in the US, nine perfectly operating nuclear plants had to shut down and then took 12 days to restart. During the first three days, when they were most needed, their output was below 3 per cent (Lovins et al, 2008). Regions heavily dependent on a fleet of nuclear plants are at greater risk because drought or safety problems can close many units simultaneously. 2 Conventional plants are more prone to cost overruns and manufacturing glitches. These power plants are ‘lumpy systems’ in the sense that additions are made in large ‘lumps’ (such as 1000MW reactors). These facilities have long lead times, making them vulnerable to project delays, unforeseen events, cost overruns and project cancellations. Nuclear power plants in Canada, the US and Finland are a prime example here. In Canada, delays and cost overruns on nuclear power plants accounted for CA$15 billion of ‘stranded debt’ created by Ontario Hydro (Winfield et al, 2006). In the US, the actual construction cost for 75 nuclear power plants was quoted to be US$89.1 billion, but because of project delays and manufacturing errors, cost overruns ballooned to more than three times as much, at US$283.8 billion (US Congressional Budget Office, 2008). The Finnish nuclear power plant at Olkiluoto was expected to cost €3 billion. By now the costs have risen to at least €4.5 billion and the power plant which was to be completed by 2009 will not go online before mid-2012. 3 Gargantuan conventional plants, because they take longer to build, are also at greater risk of unexpected changes in electricity demand over long periods of time. We have a hard enough time predicting the weather or the outcome of political elections; imagine the difficulty of projecting how an entire sector will demand electricity five, ten, or even twenty years from now. In the 1970s and 1980s, excessively high forecasts of growth in demand for electricity led to overbuilding of generating plants and massive electric system cost overruns in many states. One infamous example was in Washington State, where the Washington Public Power Supply spent more than $5 billion partially constructing nuclear plants that were later abandoned when demand for electricity dropped. Between 1972 and 1984, more than $20 billion in construction payments flowed into 115 nuclear power plants worldwide that were subsequently abandoned by their sponsors because they were no longer needed (Cavanagh, 1986). 4 Both sets of large plants, fossil fuelled and nuclear, must rely on brittle transmission lines easily disrupted by lightning strikes, storms, squirrels and bullets. Given that more than 98 per cent of blackouts and power outages start on the grid, such centralization has grave risks for electricity reliability (Lovins et al, 2008). The renewable resources supported by FITs, ironically, respond better to each of these problems. Modern wind turbines and solar panels have a technical reliability above 97 per cent. Such high reliability is for one wind turbine or solar panel, so any amount of significant wind or solar power in an electricity system would never see all (hundreds of thousands of units) down at the same time. When individual units do rarely fail, they do so in smaller increments. The high technical reliability for wind and solar lowers the probability of unplanned outages and lessens the need for operational and capacity reserves (Jacobson and Masters, 2001). Since forced outages for conventional units range from 10 to 15 per cent, and the wind turbine failure rate is less than 3 per cent, the extent that wind replaces fossil fuels improves the reliability of the system by 7–12 per cent (and also reduces backup requirements by an equivalent amount). New inverter technology has the potential to enhance the reliability of solar even further, as it will enable systems to work when partially shaded. In terms of modularity, construction cost overruns, and rapid alterations in electricity demand, the quicker lead times for renewable power plants and small- scale units enables a more accurate response to load growth or reduction. Wind farms, geothermal power plants, and biomass plants often take between one and two years to construct, and if the units are available, solar panels can be installed in as little as a few months. Small-scale solar and wind units can be matched to serve almost any load, and medium- to commercial-scale wind turbines, bioelectric plants and geothermal stations can be installed in increments ranging from 1.5MW to 20MW. Such modularity minimizes the financial risk associated with borrowing hundreds of millions of dollars to finance plants for ten or more years before they start producing a single kWh of electricity, and it means electricity loads can be precisely matched. Finally, in terms of transmission and distribution vulnerability, the small-scale and distributed renewable power generators promoted by FITs can improve grid reliability, lessen the need to build expensive transmission infrastructure, reduce congestion, offer important ancillary services, and improve energy security through geographic diversification. Deploying distributed solar, biomass and small-scale wind units offers an effective alternative to constructing new transmission and distribution lines, transformers, local taps, feeders and switchgears, especially in congested areas or regions where the permitting of new transmission networks is difficult. The Pacific Gas and Electric Company, the largest investor-owned utility in California, built an entire power plant in 1993 to test the grid benefits of a 500kW distributed solar power plant. The utility found that the distributed solar plant improved voltage support, minimized power losses, lowered operating temperatures for transformers on the grid, and improved transmission capacity. The benefits were so large that the small-scale generator was twice as valuable as estimated, with projected benefits of $0.14–0.2/kWh (Wenger et al, 1994). This could be why the Institute of Electrical and Electronics Engineers in the US recently concluded that dispersed renewable resources such as wind can be managed not only through interconnection and integration without degrading the network, they can also contribute to improvements in system performance (Smith et al, 2007). THE RELIABILITY OF HYDRO, GEOTHERMAL, SOLAR THERMAL AND BIOMASS Commercial hydroelectric, geothermal, bioelectric and biogas power plants provide predictable, 24-hour base-load power in many parts of the world, including the US (where they satisfy more than 7 per cent of national electricity demand). Other countries, like Norway, rely entirely on these technologies. Equally, the latest solar thermal power plants can now provide reliable electricity as they operate in combination with molten salt and other large storage units. These power facilities provide reliable power without the need for backup. Many of these systems are subject to woeful underinvestment, yet both hydropower and geothermal plants could provide almost the entire world’s electricity by themselves if their technical potential was fully tapped. The world consumed about 17,000TWh of electricity in 2007, yet a comprehensive study undertaken by the International Energy Agency and others identified 14,370TWh of achievable remaining potential for hydroelectric facilities (International Hydropower Association, 2000) Similarly, the International Geothermal Association surveyed a collection of studies and concluded that 22,400TWh of geothermal power potential existed (Bertani, 2002). It is always good to remember that when we are talking about the types of technologies that FITs promote, we are not talking only about intermittent resources such as wind and solar PV. We are also talking about big and small hydroelectric dams, solar thermal and geothermal plants, and bioelectric stations (some combusting fuel and others harvesting methane from landfills) that have been proven through decades of experience to operate identically to coal, oil, natural gas and nuclear units. THE RELIABILITY OF INTERCONNECTED WIND AND SOLAR While wind and solar systems are more variable than their hydro, geothermal, solar thermal and biomass counterparts, interconnecting dispersed wind and solar units greatly improves their reliability. Electrical and power systems engineers have long held the principle that the larger a system becomes, the less reserve capacity it needs. Demand variations between individual consumers are mitigated by grid interconnection in exactly this manner and modern communication technology enables us to make this happen. When a single electricity consumer starts drawing more electricity than the system has allocated for each consumer, the strain on the system is insignificant because so many consumers are drawing from the grid that it is entirely likely another consumer will be drawing less to make up the difference (International Energy Agency, 2005). This ‘averaging’ works in a similar fashion on the supply side of the grid. Individual wind turbines and solar panels average each other out in electricity supply. When the wind is not blowing through one wind farm or the sun not shining on someone’s house, it is likely to be blowing harder or shining brighter near another. Therefore, the improvement of interconnection capacity between countries and regions is of special importance for renewable energy sources. Besides, modern, large-scale wind power plants are often remote-controlled by grid operators in order to increase or reduce electricity output according to demand (see Section 3.5). A large number of meteorological wind studies make this point forcefully. Scientists looking at a 3-year data set for Scandinavian countries from 2000 to 2002 noted that that longest duration in low wind speeds per year was 58 hours for Denmark, 19 hours for Finland and Sweden, and 9 hours for Norway. However, none of these four rare events occurred at the same time, meaning there were no totally calm periods for all four countries together (Gul and Stenzel, 2006, p173). A separate study looking at Denmark and Germany found that the maximum hourly swing in wind speeds over a distributed network of wind farms rarely exceeded 20 per cent and had a standard deviation of hourly swings of 3 per cent. The study calculated that the maximum measured change in output per minute for a massive 2400MW wind farm would be less than 6MW, or 0.25 per cent of its total output (Gul and Stenzel, 2006, p171). Similarly, hourly wind data collected over a 23-year period from 66 different locations in the UK found that low wind speed events affecting more than half the country were very rare. For less than 10 per cent of the total time were wind speeds below 4 metres per second at individual sites, and there was no single event over the entire 23 years where wind speeds were low throughout all of the locations (Olz et al, 2007, p30). The conclusions advanced by these scientific studies are only bolstered by real-world operating experience in the US, Germany, Canada and the EU. In the US, one study of utility experience with wind farms spread across locations in Minnesota, California, Wisconsin, New York, Oregon, Wyoming and Colorado found that greater penetration of wind plants helped grid operators handle major outages and contingencies elsewhere in the electricity network (DeMeo et al, 2005). Another assessment of 19 wind sites in the central US noted that almost all parameters from wind power improved as the number of interconnected sites increased, including standard deviations of array-average wind speed and wind power, reliability, and the need for energy storage or reserve capacity (Archer and Jacobson, 2007). A third study performed by General Electric for the Independent System Operator in New York investigated a 10 per cent wind penetration scenario in New York State, or the addition of about 3300MW of installed wind capacity on a 33,000MW peak-load system. When researchers posited that the wind capacity was located across 30 different sites, they found ‘no credible single contingency’ that led to a significant loss of generation. Because the system in New York was already designed to handle a loss of 1200MW due to the unreliability of conventional generators, it had more than enough resiliency to enable the incorporation of wind (Piwko et al, 2005). This could be why even though the US has more than 25,000MW of installed wind capacity (the largest absolute amount in the world), not a single conventional unit has been installed as a backup generator. In Germany, the hundreds of thousands of dispersed solar photovoltaic units do not overwhelm system operators nor do they need highly advanced grids. Using a transmission and distribution system similar to the US, Germany integrates 350,000 separate solar installations (90 per cent of which are on residences) to provide 3.5GW of peak capacity. The highly dispersed and distributed nature of this resource means that when the sun shines in one area it often cancels out cloudiness in others, making it easier to manage. The German Solar Industry Association believes that solar penetration could be ramped up ten times to 35GW without any inherent technical problems.3 Moreover, grid operators have proven that they can merely issue grid codes for the different voltage levels of the grid to increase network stability when needed. In Canada, a study in Ontario investigated the impact of 20 per cent wind penetration on its electricity grid. The assessment accounted for seasonal wind and load patterns, daily wind and load patterns, changing capacity value for delivering power during peak load, and geographic diversity. It used wind and load data for one year and concluded that the more wind that existed in the system and the more geographically dispersed it was, the more it reduced volatility, in some cases by up to 70 per cent (AWS TrueWind, 2005). Last, another study looked at the wind portfolios of all major power providers in the EU and found that a large contribution of wind was technically and economically feasible. The study noted that the more wind farms are interconnected, the more performance of wind turbines increases (and the costs of their electricity decreases). The study also found that extremely large shares of wind could be realized without compromising the security of the existing transmission and distribution system (European Wind Energy Association, 2005). When researchers ollowed up on their results with thousands of additional simulations in 2008 and 2009, they found that cross-border transmission of electricity from interconnected wind farms distributed across the EU would not negatively affect reliability. No single weather event or accident occurred that would affect wind farms in all or even most countries at the same time. Furthermore, they found that the effect of aggregating electricity from wind farms across multiple countries more than doubled the capacity factor of those interconnected wind turbines (Trade Wind, 2009). These studies, in other words, conclusively show that widespread use of FITs would not compromise the stability of the electricity grid by incentivizing people to connect ‘too many’ renewables. The more FITs encourage the adoption of wind and solar, the more stable the grid becomes, rather than the other way around.

#### Successful cyber-attack on the grid would cause US lash out triggering nuclear war

Habiger, 2/1/2010 (Eugue – Retired Air Force General, Cyberwarfare and Cyberterrorism, The Cyber Security Institute, p. 11-19)

However, there are reasons to believe that what is going on now amounts to a fundamental shift as opposed to business as usual. Today’s network exploitation or information operation trespasses possess a number of characteristics that suggest that the line between espionage and conflict has been, or is close to being, crossed. (What that suggests for the proper response is a different matter.) First, the number of cyberattacks we are facing is growing significantly. Andrew Palowitch, a former CIA official now consulting with the US Strategic Command (STRATCOM), which oversees the Defense Department’s Joint Task Force‐Global Network Operations, recently told a meeting of experts that the Defense Department has experienced almost 80,000 computer attacks, and some number of these assaults have actually “reduced” the military’s “operational capabilities.”20 Second, the nature of these attacks is starting to shift from penetration attempts aimed at gathering intelligence (cyber spying) to offensive efforts aimed at taking down systems (cyberattacks). Palowitch put this in stark terms last November, “We are currently in a cyberwar and war is going on today.”21 Third, these recent attacks need to be taken in a broader strategic context. Both Russia and China have stepped up their offensive efforts and taken a much more aggressive cyberwarfare posture. The Chinese have developed an openly discussed cyberwar strategy aimed at achieving electronic dominance over the U.S. and its allies by 2050. In 2007 the Department of Defense reported that for the first time China has developed first strike viruses, marking a major shift from prior investments in defensive measures.22 And in the intervening period China has launched a series of offensive cyber operations against U.S. government and private sector networks and infrastructure. In 2007, Gen. James Cartwright, the former head of STRATCOM and now the Vice Chairman of the Joint Chiefs of Staff, told the US‐China Economic and Security Review Commission that China’s ability to launch “denial of service” attacks to overwhelm an IT system is of particular concern. 23 Russia also has already begun to wage offensive cyberwar. At the outset of the recent hostilities with Georgia, Russian assets launched a series of cyberattacks against the Georgian government and its critical infrastructure systems, including media, banking and transportation sites.24 In 2007, cyberattacks that many experts attribute, directly or indirectly, to Russia shut down the Estonia government’s IT systems. Fourth, the current geopolitical context must also be factored into any effort to gauge the degree of threat of cyberwar. The start of the new Obama Administration has begun to help reduce tensions between the United States and other nations. And, the new administration has taken initial steps to improve bilateral relations specifically with both China and Russia. However, it must be said that over the last few years the posture of both the Chinese and Russian governments toward America has clearly become more assertive, and at times even aggressive. Some commentators have talked about the prospects of a cyber Pearl Harbor, and the pattern of Chinese and Russian behavior to date gives reason for concern along these lines: both nations have offensive cyberwarfare strategies in place; both nations have taken the cyber equivalent of building up their forces; both nations now regularly probe our cyber defenses looking for gaps to be exploited; both nations have begun taking actions that cross the line from cyberespionage to cyberaggression; and, our bilateral relations with both nations are increasingly fractious and complicatedby areas of marked, direct competition. Clearly, there a sharp differences between current U.S. relations with these two nations and relations between the US and Japan just prior to World War II. However, from a strategic defense perspective, there are enough warning signs to warrant preparation. In addition to the threat of cyberwar, the limited resources required to carry out even a large scale cyberattack also makes likely the potential for a significant cyberterror attack against the United States. However, the lack of a long list of specific incidences of cyberterrorism should provide no comfort. There is strong evidence to suggest that al Qaeda has the ability to conduct cyberterror attacks against the United States and its allies. Al Qaeda and other terrorist organizations are extremely active in cyberspace, using these technologies to communicate among themselves and others, carry out logistics, recruit members, and wage information warfare. For example, al Qaeda leaders used email to communicate with the 9‐11 terrorists and the 9‐11 terrorists used the Internet to make travel plans and book flights. Osama bin Laden and other al Qaeda members routinely post videos and other messages to online sites to communicate. Moreover, there is evidence of efforts that al Qaeda and other terrorist organizations are actively developing cyberterrorism capabilities and seeking to carry out cyberterrorist attacks. For example, the Washington Post has reported that “U.S. investigators have found evidence in the logs that mark a browser's path through the Internet that al Qaeda operators spent time on sites that offer software and programming instructions for the digital switches that run power, water, transport and communications grids. In some interrogations . . . al Qaeda prisoners have described intentions, in general terms, to use those tools.”25 Similarly, a 2002 CIA report on the cyberterror threat to a member of the Senate stated that al Qaeda and Hezbollah have become "more adept at using the internet and computer technologies.”26 The FBI has issued bulletins stating that, “U. S. law enforcement and intelligence agencies have received indications that Al Qaeda members have sought information on Supervisory Control And Data Acquisition (SCADA) systems available on multiple SCADA‐related web sites.”27 In addition a number of jihadist websites, such as 7hj.7hj.com, teach computer attack and hacking skills in the service of Islam.28 While al Qaeda may lack the cyber‐attack capability of nations like Russia and China, there is every reason to believe its operatives, and those of its ilk, are as capable as the cyber criminals and hackers who routinely effect great harm on the world’s digital infrastructure generally and American assets specifically. In fact, perhaps, the most troubling indication of the level of the cyberterrorist threat is the countless, serious non‐terrorist cyberattacks routinely carried out by criminals, hackers, disgruntled insiders, crime syndicates and the like. If run‐of‐the‐mill criminals and hackers can threaten powergrids, hack vital military networks, steal vast sums of money, take down a city’s of traffic lights, compromise the Federal Aviation Administration’s air traffic control systems, among other attacks, it is overwhelmingly likely that terrorists can carry out similar, if not more malicious attacks. Moreover, even if the world’s terrorists are unable to breed these skills, they can certainly buy them. There are untold numbers of cybermercenaries around the world—sophisticated hackers with advanced training who would be willing to offer their services for the right price. Finally, given the nature of our understanding of cyber threats, there is always the possibility that we have already been the victim or a cyberterrorist attack, or such an attack has already been set but not yet effectuated, and we don’t know it yet. Instead, a well‐designed cyberattack has the capacity cause widespread chaos, sow societal unrest, undermine national governments, spread paralyzing fear and anxiety, and create a state of utter turmoil, all without taking a single life. A sophisticated cyberattack could throw a nation’s banking and finance system into chaos causing markets to crash, prompting runs on banks, degrading confidence in markets, perhaps even putting the nation’s currency in play and making the government look helpless and hapless. In today’s difficult economy, imagine how Americans would react if vast sums of money were taken from their accounts and their supporting financial records were destroyed. A truly nefarious cyberattacker could carry out an attack in such a way (akin to Robin Hood) as to engender populist support and deepen rifts within our society, thereby making efforts to restore the system all the more difficult. A modestly advanced enemy could use a cyberattack to shut down (if not physically damage) one or more regional power grids. An entire region could be cast into total darkness, power‐dependent systems could be shutdown. An attack on one or more regional power grids could also cause cascading effects that could jeopardize our entire national grid. When word leaks that the blackout was caused by a cyberattack, the specter of a foreign enemy capable of sending the entire nation into darkness would only increase the fear, turmoil and unrest. While the finance and energy sectors are considered prime targets for a cyberattack, an attack on any of the 17 delineated critical infrastructure sectors could have a major impact on the United States. For example, our healthcare system is already technologically driven and the Obama Administration’s e‐health efforts will only increase that dependency. A cyberattack on the U.S. e‐health infrastructure could send our healthcare system into chaos and put countless of lives at risk. Imagine if emergency room physicians and surgeons were suddenly no longer able to access vital patient information. A cyberattack on our nation’s water systems could likewise cause widespread disruption. An attack on the control systems for one or more dams could put entire communities at risk of being inundated, and could create ripple effects across the water, agriculture, and energy sectors. Similar water control system attacks could be used to at least temporarily deny water to otherwise arid regions, impacting everything from the quality of life in these areas to agriculture. In 2007, the U.S. Cyber Consequences Unit determined that the destruction from a single wave of cyberattacks on critical infrastructures could exceed $700 billion, which would be the rough equivalent of 50 Katrina‐esque hurricanes hitting the United States all at the same time.29 Similarly, one IT security source has estimated that the impact of a single day cyberwar attack that focused on and disrupted U.S. credit and debit card transactions would be approximately $35 billion.30 Another way to gauge the potential for harm is in comparison to other similar noncyberattack infrastructure failures. For example, the August 2003 regional power grid blackout is estimated to have cost the U.S. economy up to $10 billion, or roughly .1 percent of the nation’s GDP. 31 That said, a cyberattack of the exact same magnitude would most certainly have a much larger impact. The origin of the 2003 blackout was almost immediately disclosed as an atypical system failure having nothing to do with terrorism. This made the event both less threatening and likely a single time occurrence. Had it been disclosed that the event was the result of an attack that could readily be repeated the impacts would likely have grown substantially, if not exponentially. Additionally, a cyberattack could also be used to disrupt our nation’s defenses or distract our national leaders in advance of a more traditional conventional or strategic attack. Many military leaders actually believe that such a disruptive cyber pre‐offensive is the most effective use of offensive cyber capabilities. This is, in fact, the way Russia utilized cyberattackers—whether government assets, governmentdirected/ coordinated assets, or allied cyber irregulars—in advance of the invasion of Georgia. Widespread distributed denial of service (DDOS) attacks were launched on the Georgian governments IT systems. Roughly a day later Russian armor rolled into Georgian territory. The cyberattacks were used to prepare the battlefield; they denied the Georgian government a critical communications tool isolating it from its citizens and degrading its command and control capabilities precisely at the time of attack. In this way, these attacks were the functional equivalent of conventional air and/or missile strikes on a nation’s communications infrastructure.32 One interesting element of the Georgian cyberattacks has been generally overlooked: On July 20th, weeks before the August cyberattack, the website of Georgian President Mikheil Saakashvili was overwhelmed by a more narrowly focused, but technologically similar DDOS attack.33 This should be particularly chilling to American national security experts as our systems undergo the same sorts of focused, probing attacks on a constant basis. The ability of an enemy to use a cyberattack to counter our offensive capabilities or soften our defenses for a wider offensive against the United States is much more than mere speculation. In fact, in Iraq it is already happening. Iraq insurgents are now using off‐the‐shelf software (costing just $26) to hack U.S. drones (costing $4.5 million each), allowing them to intercept the video feed from these drones.34 By hacking these drones the insurgents have succeeded in greatly reducing one of our most valuable sources of real‐time intelligence and situational awareness. If our enemies in Iraq are capable of such an effective cyberattack against one of our more sophisticated systems, consider what a more technologically advanced enemy could do. At the strategic level, in 2008, as the United States Central Command was leading wars in both Iraq and Afghanistan, a cyber intruder compromised the security of the Command and sat within its IT systems, monitoring everything the Command was doing. 35 This time the attacker simply gathered vast amounts of intelligence. However, it is clear that the attacker could have used this access to wage cyberwar—altering information, disrupting the flow of information, destroying information, taking down systems—against the United States forces already at war. Similarly, during 2003 as the United States prepared for and began the War in Iraq, the IT networks of the Department of Defense were hacked 294 times.36 By August of 2004, with America at war, these ongoing attacks compelled then‐Deputy Secretary of Defense Paul Wolfowitz to write in a memo that, "Recent exploits have reduced operational capabilities on our networks."37 This wasn’t the first time that our national security IT infrastructure was penetrated immediately in advance of a U.S. military option.38 In February of 1998 the Solar Sunrise attacks systematically compromised a series of Department of Defense networks. What is often overlooked is that these attacks occurred during the ramp up period ahead of potential military action against Iraq. The attackers were able to obtain vast amounts of sensitive information—information that would have certainly been of value to an enemy’s military leaders. There is no way to prove that these actions were purposefully launched with the specific intent to distract American military assets or degrade our capabilities. However, such ambiguities—the inability to specifically attribute actions and motives to actors—are the very nature of cyberspace. Perhaps, these repeated patterns of behavior were mere coincidence, or perhaps they weren’t. The potential that an enemy might use a cyberattack to soften physical defenses, increase the gravity of harms from kinetic attacks, or both, significantly increases the potential harms from a cyberattack. Consider the gravity of the threat and risk if an enemy, rightly or wrongly, believed that it could use a cyberattack to degrade our strategic weapons capabilities. Such an enemy might be convinced that it could win a war—conventional or even nuclear—against the United States. The effect of this would be to undermine **our** deterrence‐based defenses, making us significantly more at risk of a major war.

#### Nuclear power is increasing

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[World Nuclear News, “Nuclear growth slowing not stalling,” September 26th 2012, <http://www.world-nuclear-news.org/NP-Nuclear_growth_slowing_not_stalling-2609127.html>]

Growth rates may have slowed but world nuclear energy capacity will nevertheless continue to increase over the coming decades, according to the latest projections from the International Atomic Energy Agency (IAEA). When IAEA director general Yukiya Amano referred to the findings of the 32nd edition of the IAEA's annually updated Reference Data Series No. 1 in his address to the agency's 56th General Conference in Vienna recently, he noted that although the 2011 Fukushima Daiichi accident raised "fundamental questions" on nuclear's future, the atom will remain an important option for many countries, with developing countries continuing to show a keen interest in nuclear power. The newly released report - full title Energy, Electricity and Nuclear Power Estimates for the Period up to 2050 - contains high and low projections of energy, electricity and nuclear power trends over the coming years. Under the low scenario, installed nuclear capacity is predicted to grow from 2011's 370 GWe to reach 456 GWe by 2030, about 9% down on the increase projected in 2011. A ten-year delay in growth anticipated before the Fukushima accident is observed, with nuclear capacity taking until 2030 to reach levels that had previously been anticipated for 2020. The high scenario predicts nuclear capacity reaching 740 GWe by 2040. Projected growth is strongest in the east Asia, including China and South Korea, where regional capacity is forecast to grow from 80 GWe at the end of 2011 to 153 GWe in 2030 in the low scenario and 274 GWe in the high scenario. Growth is expected in all regions of the world under the high scenario, although total Western European nuclear capacity could decline from 115 GWe in 2011 to 70 GWe in 2030 under the low scenario. The low scenario also sees a slight decrease for nuclear capacity in North America. The figures on nuclear are based on actual statistical data collected by the IAEA, with country-by-country estimates of future nuclear capacity established by a group of experts using a 'bottom up' approach. All possible licence renewals, planned shutdowns and plausible construction projects are taken into consideration. The conservative low scenario assumes the continuation of current trends and few unexpected policy changes, although it is compatible with a potential decline in nuclear's share of Japan's electricity mix. The more optimistic high scenario assumes that current global financial and economic crises are overcome relatively soon and global policies are implemented to mitigate climate change. Both scenarios are plausible and technically feasible, the IAEA maintains. The report recognises the on-going global financial crisis, the low price of natural gas and reduced electricity demand in some regions, in addition to responses to Fukushima, as challenges that will serve to temporarily delay the deployment of some nuclear power plants. Eighteen months on from the Fukushima Daiichi nuclear accident there is still uncertainty about the full extent of the effects of individual policy responses to regional projections. Nevertheless, the report says, the "underlying fundamentals of population growth and demand for electricity in the developing world," coupled with concerns over climate change, energy security and price volatility for other fuels, "continue to point to nuclear generating capacity playing an important role in the energy mix in the longer term."

#### Expansion of nuclear power is key to solve water wars HIGHLIGHT DOWN

Solan et al., Public Policy Prof @ Boise State, ’10

[David Solan, Director, Energy Policy Institute (EPI), Associate Director, Center for Advanced Energy Studies (CAES), Assistant Professor, Public Policy and Administration, Boise State, Geoffrey A Black, PhD, Associate Professor, Department Chair, Economics, Boise State, et al. “Economic and Employment Impacts of Small Modular Reactors,” June 2010]

Besides electricity generation, additional applications may be well-­‐suited for SMR systems in the future. While the applicability of nuclear energy to additional applications is not dependent on facility size, the actual use of large nuclear facilities does not occur due to economic considerations. Currently, only a few countries utilize nuclear energy for non-­‐generation purposes, primarily desalination and district heating (IAEA, 2008). A brief overview of the application possibilities for SMRs is provided below. Desalination. The IAEA has identified desalination as possibly the leading non-­‐electric civilian use for nuclear energy. Water scarcity is becoming an increasingly problematic global issue in both developed and developing countries. As noted in an IAEA (2007) report, Because of population growth, surface water resources are increasingly stressed in many parts of the world, developed and developing regions alike. Water stress is counter to sustainable development; it engenders disease; diverts natural flows, endangering flora and fauna of rivers, lakes wetlands, deltas and oceans; and it incites regional conflicts over water rights. In the developing world, more than one billion people currently lack access to safe drinking water; nearly two and a half billion lack access to adequate sanitation services. This would only get worse as populations as populations grow. Water stress is severe in the developed world as well…in light of these trends, many opportunities in both developed and developing countries are foreseen for supply of potable water generated using nuclear process heat or off-­‐peak electricity (p. 23). The desalination of sea water requires large amounts of energy and is not dependent on a particular fuel for heat or electricity. The IAEA (2000) defines nuclear desalination as “the production of potable water from sea water in a facility in which a nuclear reactor is used as the source of energy for the desalination process” (pg. 3). The three technologies that comprise nuclear desalination are nuclear, the desalination method, and the system that couples them together (IAEA, 2000). The feasibility of integrated nuclear desalination plants has been proven with over 175 reactor-­‐years of experience worldwide (IAEA, 2007a). Large-­‐scale, proven commercial technologies for desalination can be grouped into distillation processes and the reverse osmosis process. Distillation technologies require heat to create steam which condenses and separates fresh water from brine. Reverse osmosis requires only electricity to push fresh water from the higher pressure saltwater side of a semi-­‐permeable membrane to the lower pressure freshwater side. An IAEA study (2007a) on the economics of nuclear desalination reported that SMRs offer the largest potential as coupling options to nuclear desalination systems in developing countries’ (p. 4). Furthermore, the study found that the costs for nuclear desalination are roughly similar to that of natural gas desalination, and could be substantially lower depending on fuel costs (IAEA, 2007a). Based on a preliminary assessment of the global desalination market through 2030, particularly in developing countries, desalination has the potential to provide a strong market for SMRs if they can successfully compete with conventional nuclear plants and other sources of generation (Arthur, 2010).

#### Global nuclear war

NASCA, ’04

[National Association for Scientific & Cultural Appreciation, “Water shortages - Only a matter of time,” http://www.nasca.org.uk/Strange\_relics\_/water/water.html]

Water is one of the prime essentials for life as we know it. The plain fact is - no water, no life! This becomes all the more worrying when we realise that the worlds supply of drinkable water will soon diminish quite rapidly. In fact a recent report commissioned by the United Nations has emphasised that by the year 2025 at least 66% of the worlds population will be without an adequate water supply. As a disaster in the making water shortage ranks in the top category. Without water we are finished, and it is thus imperative that we protect the mechanism through which we derive our supply of this life giving fluid. Unfortunately the exact opposite is the case. We are doing incalculable damage to the planets capacity to generate water and this will have far ranging consequences for the not too distant future. The United Nations has warned that burning of fossil fuels is the prime cause of water shortage. While there may be other reasons such as increased solar activity it is clear that this is a situation over which we can exert a great deal of control. If not then the future will be very bleak indeed! Already the warning signs are there. The last year has seen devastating heatwaves in many parts of the world including the USA where the state of Texas experienced its worst drought on record. Elsewhere in the United States forest fires raged out of control, while other regions of the globe experienced drought conditions that were even more severe. Parts of Iran, Afgahnistan, China and other neighbouring countries experienced their worst droughts on record. These conditions also extended throughout many parts of Africa and it is clear that if circumstances remain unchanged we are facing a disaster of epic proportions. Moreover it will be one for which there is no easy answer. The spectre of a world water shortage evokes a truly frightening scenario. In fact the United Nations warns that disputes over water will become the prime source of conflict in the not too distant future. Where these shortages become ever more acute it could forseeably lead to the brink of nuclear conflict. On a lesser scale water, and the price of it, will acquire an importance somewhat like the current value placed on oil. The difference of cour

### Transhumanism

#### **Speciesism is key to Transhumanism**

CALVERLY ‘6 (David; Center for the Study of Law, Science and Technology – Arizona State University, “Android Science and Animal Rights, Does an Analogy Exist?” Connection Science, 18:4, December)

Even more fundamentally, there are concerns that arise at the earliest stages of development of a machine consciousness. The endeavour itself is replete with moral and ethical pitfalls. If the same logic as urged for animal rights, or for the rights of foetuses, is applied to a machine consciousness, some of these issues could have the potential to curtail radically the development of a conscious entity. If part of the process of developing a machine consciousness is an emergent learning process (Lindblom and Ziemke 2006), or even a process of creating various modules that add attributes of consciousness such as sentience, nociception, or language, in a cumulative fashion, some could argue that this is immoral. As posed by LaChat (1986: 75–76), the question becomes ‘Is the AI experiment then immoral from its inception, assuming, that is, that the end (telos) of the experiment is the production of a person? . . . An AI experiment that aims at producing a self-reflexively conscious and communicative “person” is prima facie immoral’. Must designers of a machine consciousness be aware that as they come closer to their goal, they may have to consider such concerns in their experimentation? Arguably yes, if human equivalence is the ultimate goal. Failure to treat a machine consciousness in a moral way could be viewed as a form of speciesism (Ryder 1975). The utilitarian philosopher J. J. C. Smart (1973: 67) has observed ‘if it became possible to control our evolution in such a way as to develop a superior species, then the difference between species morality and a morality of all sentient beings would become much more of a live issue’.

#### **Transhuman focus means we address existential risks – those outweigh**

Nick Bostrom, Faculty of Philosophy Oxford University, The Transhumanist FAQ- A General Introduction, Version 2.1 (2003), google.

Yes, and this implies an urgent need to analyze the risks before they materialize and to take steps to reduce them. Biotechnology, nanotechnology, and artificial intelligence pose especially serious risks of accidents and abuse. [See also “ If these technologies are so dangerous, should they be banned? What can be done to reduce the risks?” ] One can distinguish between, on the one hand, endurable or limited hazards, such as car crashes, nuclear reactor meltdowns, carcinogenic pollutants in the atmosphere, floods, volcano eruptions, and so forth, and, on the other hand, existential risks – events that would cause the extinction of intelligent life or permanently and drastically ~~cripple~~ [halt] its potential. While endurable or limited risks can be serious – and may indeed be fatal to the people immediately exposed – they are recoverable; they do not destroy the long-term prospects of humanity as a whole. Humanity has long experience with endurable risks and a variety of institutional and technological mechanisms have been employed to reduce their incidence. Existential risks are a different kind of beast. For most of human history, there were no significant existential risks, or at least none that our ancestors could do anything about. By definition, of course, no existential disaster has yet happened. As a species we may therefore be less well prepared to understand and manage this new kind of risk. Furthermore, the reduction of existential risk is a global public good (everybody by necessity benefits from such safety measures, whether or not they contribute to their development), creating a potential free-rider problem, i.e. a lack of sufficient selfish incentives for people to make sacrifices to reduce an existential risk. Transhumanists therefore recognize a moral duty to promote efforts to reduce existential risks.

### Aliens Turn

#### The rules of anthropocentrism would be justifiably applicable to extra-terrestrial life

Huebert and Block ‘7 (J.H. and Walter , 2007, J.D. - University of Chicago and Harold E. Wirth Eminent Scholar Endowed Chair in Econmics - College of Business Administration - Loyola University, "Space Environmentalism, Property Rights, and the Law" 37 U. Mem. L. Rev. 281, Winter, ln

Some observers, such as Roberts, believe that bodies "with the potential for harboring biotic or prebiotic activity" present a special case for which different rules must apply. Roberts states that where life exists or even potentially exists, we must apply the "precautionary principle," which would place the burden of proof on those engaged in a "challenged activity" and prohibit development that threatens evidence of past life or the existence of present or "potential" life. [n96](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview#n96) We disagree. First, we note that there is no evidence that life exists or has ever existed anywhere in the **solar** System except Earth. [n97](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview#n97) Further, there is a strong consensus that to the extent that life might exist or have ever existed elsewhere, such as on Mars or Europa, it is limited to extremely simple microscopic organisms. [n98](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview#n98) The likelihood of sentient or even plant life existing elsewhere in the solar System appears to be zero, and the question of life on planets outside the solar System is very hypothetical, even for an article on space law. [n99](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview#n99) Therefore, a presumption against the existence of actual life where no evidence to the contrary exists seems proper. Further, space environmentalists have failed to make the case that environmental regulations are necessary to protect whatever extraterrestrial life (or evidence thereof) may exist. Humans are fascinated by the prospect of the existence of any kind of extraterrestrial life. Anyone who bothers to go to space for any purpose is likely to be interested in checking for signs of past or present life on his property (or prospective property) before acting in a way that might destroy it. For the intellectually uncurious, there would still be financial incentives. For example, scientific or environmental organizations could offer prize money for discovery of evidence [\*303] of extraterrestrial life; a property owner who discovers evidence of life could sell scientists, journalists, and others rights to access, study, and publicize information about the discovery. Only governmental intervention (e.g., stripping individuals of property rights when something of scientific interest is found on their property) is likely to cause incentives to run in any other direction. [n100](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview#n100) Suppose there were the proverbial "little green creatures" discovered on Mars or on any other planet humans colonized. What rights would they have? What obligations would we have to respect these rights? If they were smarter/stronger than we, the shoe of course would be on the other foot. There are several options. If they had the intelligence/ability of dogs or cats, then we would treat them as we now do those animals. But suppose they were an intermediate between us and the smartest of earth animals (chimps, porpoises), or had human qualities but looked like a cross between an octopus and a giraffe. According to Rothbard, [n101](http://www.lexisnexis.com.proxy-remote.galib.uga.edu/us/lnacademic/frame.do?tokenKey=rsh-20.678837.5771811252&target=results_DocumentContent&reloadEntirePage=true&rand=1234148840673&returnToKey=20_T5728010935&parent=docview#n101) if they could communicate with us, promise to respect our personal and property rights, and adhere to such undertakings, then and only then would we be obligated to treat them as we do each other (well, better, hopefully).

#### Embracing aliens leads to extinction

Leake, Writer for the Sunday Times, 10

[Jonathon, The Sunday Times, “Don’t talk to aliens, warns Stephen Hawking” 4/25/10 http://www.timesonline.co.uk/tol/news/science/space/article7107207.ece ,accessed 6/21/11,HK]

THE aliens are out there and Earth had better watch out, at least according to Stephen Hawking. He has suggested that extraterrestrials are almost certain to exist — but that instead of seeking them out, humanity should be doing all it that can to avoid any contact. The suggestions come in a new documentary series in which Hawking, one of the world’s leading scientists, will set out his latest thinking on some of the universe’s greatest mysteries. Alien life, he will suggest, is almost certain to exist in many other parts of the universe: not just in planets, but perhaps in the centre of stars or even floating in interplanetary space. Hawking’s logic on aliens is, for him, unusually simple. The universe, he points out, has 100 billion galaxies, each containing hundreds of millions of stars. In such a big place, Earth is unlikely to be the only planet where life has evolved. “To my mathematical brain, the numbers alone make thinking about aliens perfectly rational,” he said. “The real challenge is to work out what aliens might actually be like.” The answer, he suggests, is that most of it will be the equivalent of microbes or simple animals — the sort of life that has dominated Earth for most of its history. One scene in his documentary for the Discovery Channel shows herds of two-legged herbivores browsing on an alien cliff-face where they are picked off by flying, yellow lizard-like predators. Another shows glowing fluorescent aquatic animals forming vast shoals in the oceans thought to underlie the thick ice coating Europa, one of the moons of Jupiter. Such scenes are speculative, but Hawking uses them to lead on to a serious point: that a few life forms could be intelligent and pose a threat. Hawking believes that contact with such a species could be devastating for humanity. He suggests that aliens might simply raid Earth for its resources and then move on: “We only have to look at ourselves to see how intelligent life might develop into something we wouldn’t want to meet. I imagine they might exist in massive ships, having used up all the resources from their home planet. Such advanced aliens would perhaps become nomads, looking to conquer and colonise whatever planets they can reach.” He concludes that trying to make contact with alien races is “a little too risky”. He said: “If aliens ever visit us, I think the outcome would be much as when Christopher Columbus first landed in America, which didn’t turn out very well for the Native Americans.” The completion of the documentary marks a triumph for Hawking, now 68, who is paralysed by motor neurone disease and has very limited powers of communication. The project took him and his producers three years, during which he insisted on rewriting large chunks of the script and checking the filming. John Smithson, executive producer for Discovery, said: “He wanted to make a programme that was entertaining for a general audience as well as scientific and that’s a tough job, given the complexity of the ideas involved.” Hawking has suggested the possibility of alien life before but his views have been clarified by a series of scientific breakthroughs, such as the discovery, since 1995, of more than 450 planets orbiting distant stars, showing that planets are a common phenomenon. So far, all the new planets found have been far larger than Earth, but only because the telescopes used to detect them are not sensitive enough to detect Earth-sized bodies at such distances. Another breakthrough is the discovery that life on Earth has proven able to colonise its most extreme environments. If life can survive and evolve there, scientists reason, then perhaps nowhere is out of bounds. Hawking’s belief in aliens places him in good scientific company. In his recent Wonders of the Solar System BBC series, Professor Brian Cox backed the idea, too, suggesting Mars, Europa and Titan, a moon of Saturn, as likely places to look. Similarly, Lord Rees, the astronomer royal, warned in a lecture earlier this year that aliens might prove to be beyond human understanding. “I suspect there could be life and intelligence out there in forms we can’t conceive,” he said. “Just as a chimpanzee can’t understand quantum theory, it could be there are aspects of reality that are beyond the capacity of our brains.”

### AT: Anthropocentrism

#### Human-centeredness is key to environmental sustainability

Schmidtz 2k – Professor of Philosophy @ Arizona

David Schmidtz, 2k. Philosophy, University of Arizona, Environmental Ethics, p. 379-408

Like economic reasoning, ecological reasoning is reasoning about equilibria and perturbations that keep systems from converging on equilibria. Like economic reasoning, ecological reasoning is reasoning about competition and unintended consequences, and the internal logic of systems, a logic that dictates how a system responds to attempts to manipulate it. Environmental activism and regulation do not automatically improve the environment. It is a truism in ecology, as in economics, that well-intentioned interventions do not necessarily translate into good results. Ecology (human and nonhuman) is complicated, our knowledge is limited, and environmentalists are themselves only human. Intervention that works with the system’s logic rather than against it can have good consequences. Even in a centrally planned economy, the shape taken by the economy mainly is a function not of the central plan but of how people respond to it, and people respond to central plans in ways that best serve their purposes, not the central planner’s. Therefore, even a dictator is in no position simply to decide how things are going to go. Ecologists understand that this same point applies in their own discipline. They understand that an ecology’s internal logic limits the directions in which it can be taken by would-be ecological engineers. Within environmental philosophy, most of us have come around to something like Aldo Leopold’s view of humans as plain citizens of the biotic community.[[21]](http://www.theihs.org/libertyguide/hsr/hsr.php?id=41&print=1#_ftn22) As Bryan Norton notes, the contrast between anthropocentrism and biocentrism obscures the fact that we increasingly need to be nature-centered to be properly human-centered; we need to focus on "saving the ecological systems that are the context of human cultural and economic activities." [[22]](http://www.theihs.org/libertyguide/hsr/hsr.php?id=41&print=1#_ftn23) If we do not tend to what is good for nature, we will not be tending to what is good for people either. As Gary Varner recently put it, on purely anthropocentric grounds we have reason to think biocentrically.[[23]](http://www.theihs.org/libertyguide/hsr/hsr.php?id=41&print=1#_ftn24) I completely agree. What I wish to add is that the converse is also true: on purely biocentric grounds, we have reason to think anthropocentrically. We need to be human-centered to be properly nature-centered, for if we do not tend to what is good for people, we will not be tending to what is good for nature either. From a biocentric perspective, preservationists sometimes are not anthropocentric enough. They sometimes advocate policies and regulations with no concern for values and priorities that differ from their own. Even from a purely biocentric perspective, such slights are illegitimate. Policy makers who ignore human values and human priorities that differ from their own will, in effect, be committed to mismanaging the ecology of which those ignored values and priorities are an integral part.

#### Equating speciesism with racism/sexism is offensive and absurd

NICOLL and RUSSELL ‘1 (Charles, Prof. Integrative Biology @ UC Berkeley, and Sharon, Dept. Physiology-Anatomy @ UC Berkeley, in “Why Animal Experimentation Matters: The Use of Animals in Medical Research”, Ed. Paul and Paul, p. 161-162)

Some advocates for animals, including Singer, do not believe that animals deserve to have rights in the same sense that we accord tern to humans.5° Instead, they argue that because animals meet their criteria of "moral relevance," they are entitled to equal moral consideration with human beings. If we are willing to exploit animals in any way, we should be willing to do likewise to people since humans are not more "morally relevant" than animals. When we regard animals to be less than our moral equals, we are practicing a kind of interspecies discrimination that these advocates call "speciesism," an attitude they analogize to types of intraspecies discrimination such as sexism and racism. Richard Ryder claims credit for coining the term "speciesism" in 1970.51 In 1985 the term was defined in the Oxford English Dictionary as "[d]iscrimination against or exploitation of certain animal species by human beings, based on an assumption of mankind's superiority."52 Singer has stated that [s]peciesism ... is a prejudice or attitude of bias in favor of the interests of members of one's own species and against those of members of other species."53 To support the correctness of their opinion about the immorality of speciesism, animal activists claim that it is comparable to discrimination on the basis of sex or race. We object strongly to this kind of equation. To quote Cohen again, "[t]his argument is worse than unsound: it is atrocious."54 Sexism and racism are not justifiable because normal men and women of all racial and ethnic groups are, on average, intellectually and morally equal, and their behavior can be judged against the same moral standards. Animals do not have such equivalence with humans

. To deny rights or equal consideration on the basis of sex or race is immoral because all normal humans, regardless of sex, ethnicity, or race, can claim the rights and considerations that they deserve, and they know what it means to be unjustly denied them. No animals have these abilities. Speciesism, as defined by Ryder and Singer, is a normal kind of discrimination displayed by all social animals, but racism and sexism are widely considered to be morally indefensible practices. By equating racism and sexism with speciesism, Ryder and Singer degrade the struggle to achieve racial and sexual equality.55 In addition to having this ethical problem, the concept of speciesism is also biologically absurd; we consider this below.

#### Their ethic is biologically impossible

Duckler 8 – PhD in Biology

Geordie, ARTICLE: TWO MAJOR FLAWS OF THE ANIMAL RIGHTS MOVEMENT, PhD in Biology, JD from Northwestern, 14 Animal L. 179

**Those of us at the heart of the animal law movement envision a world** in which the lives and interests of all sentient beings are respected within the legal system, where companion animals have good, loving homes for a lifetime, where wild animals can live out their natural lives according to their instincts in an environment that supports their needs - a world **in which animals are not exploited, terrorized, tortured or controlled to serve frivolous or greedy human purposes**. This vision guides in working toward a far more just and truly humane society. [n83](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n83)   A workable definition of "sentience" or "sentient beings" notwithstanding, **one would have to ignore the last hundred and fifty years of accumulated rigorous scientific study of how evolution by natural selection actually works in the natural world to sincerely make such a  [\*197]  plea**. [n84](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n84) **A world "in which animals are not exploited, terrorized, tortured or controlled to serve frivolous or greedy human purposes"** [n85](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n85) **is an unobtainable, inherently biologically impossible world.** Moreover, **the world of nature** to which Tischler fervently hopes to return animals already is a world in which **animals are "exploited, terrorized, tortured or controlled"** [n86](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n86) **to serve the frivolous or greedy purposes of other animals, including conspecifics and kin.**

#### Morality fails to apply across animalia – other animals won’t respect morality

Duckler 8 – PhD in Biology

Geordie, ARTICLE: TWO MAJOR FLAWS OF THE ANIMAL RIGHTS MOVEMENT, PhD in Biology, JD from Northwestern, 14 Animal L. 179

**Another example of ethical conflict created by the animal rights position is that the entire animal world must be seen to be inherently immoral because the new "rights" will never be respected between and among animals other than humans**. [n89](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n89) **God help the activist who tries valiantly to hold long onto the argument that it is morality that demands legal rights for animals: A basic biology text would stop them absolutely cold at the early chapter describing the major division of all  [\*198]  life into prokaryotes and eukaryotes**. [n90](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n90) If activists gleaned their information from a college science lesson instead of from a religious tome, they would find that prokaryotes engage in immoral acts: **Throughout earth history, prokaryotes have created immense global "crises**

 **of starvation, pollution, and extinction**" [n91](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n91) **that make human parallels appear trivial in comparison. Prokaryotes destroy other organisms by the great multitude, routinely transfer genetic material freely from individual to individual, fool around with genetic engineering, create "chimeras" at a level that our most ill-advised laboratory technicians could only dream about, and fundamentally alter the biotic and abiotic world in doing so**. [n92](http://www.lexisnexis.com.www2.lib.ku.edu:2048/us/lnacademic/frame.do?tokenKey=rsh-20.997959.0518058672&target=results_DocumentContent&reloadEntirePage=true&rand=1220848443484&returnToKey=20_T4504110919&parent=docview#n92)

#### Human separation from nature is inevitable and good- the transition to small ag leads to poverty and environmental destruction

Bailey 6 – Economic Philosopher

Ronald, Economic Philosopher and Science Editor for Reason Magazine, The Lingering Stench of Malthus, <http://www.reason.com/news/show/117481.html>

The further good news is that the movement of humanity's burgeoning population into the thousand of megacities foreseen that Rifkin is part of a process that ultimately will leave more land for nature. Today cities occupy just 2 percent of the earth's surface, but that will likely double to 4 percent over the next half century. In order to avoid this ostensibly terrible fate Rifkin proclaims, "In the next phase of human history, we will need to find a way to reintegrate ourselves into the rest of the living Earth if we are to preserve our own species and conserve the planet for our fellow creatures." Actually, he's got it completely backwards. Humanity must not reintegrate into nature-that way lays disaster for humanity and nature. Instead we must make ourselves even more autonomous than we already are from her. Since nothing is more destructive of nature than poverty stricken subsistence farmers, boosting agricultural productivity is the key to the human retreat from wild nature. As Jesse Ausubel, the director for the Program for the Human Environment at Rockefeller University, points out: "If the world farmer reaches the average yield of today's US corn grower during the next 70 years, ten billion people eating as people now on average do will need only half of today's cropland. The land spared exceeds Amazonia." Similarly all of the world's industrial wood could be produced on an area that is less than 10 percent of the world's forested area today leaving 90 percent of the world's forests for Nature.

#### No such thing as root cause

Holland 6 (Joshua, “About those real reasons for the invasion of Iraq …” March 20, 2006, Alternet, <http://www.alternet.org/blogs/echochamber/33790/>)

That's because there is almost never one "real" cause of any foreign policy action. Look seriously at foreign policy formation and you'll see that FoPo is an extension of domestic politics, with all its varied constituents and interest groups. That's why all of the reasons thrown about for this war are correct, except the ones that the administration that started it have peddled. So, yes, the guys at Lockheed and Boeing and Northrop Grumman and Raytheon and General Dynamics wanted this war because all wars are good for business. And, yes, Bush's oil buddies wanted access to a big chunk of the world's petroleum reserves. (Because I like accuracy, I replaced my 'No Blood For Oil' bumper sticker with a bumper-length banner reading: 'No blood for assuring a stable energy supply-chain to a global economy in which we're heavily invested.') Yes, there were various stripes of Neo-cons and democratic imperialists and other PNAC-type ideologues who wanted to enforce a global 'rule set' centered around American hegemony. And, yes, there were the boys from Halliburton and Bechtel and Dyncorp and Caci and Titan who wanted fat contracts to rebuild Iraq (which they've totally fucked up). No doubt that there were good ole' boys from the Chamber of Commerce and AEI who George saw on the links or in the clubhouse and who told him how marvelous it would be to see what a fully privatized neo-liberal laboratory would look like in action. I'm sure, too, that there were various Fundie Christian extremists who thought a big conflagration in the Middle East would set off the rapture.