# Case

### AT: No Nuclear Energy

#### Nuclear energy increasing worldwide – new IAEA report concludes despite Fukushima and low gas prices multiple new countries pushing for nuclear power and existing nuclear countries are creating new additions

#### Specifically – Middle Eastern countries have an incentive to procure nuclear tech – most economical to consume cheap nuclear power as they export pricy oil – That’s Barber & WNN – doesn’t apply to this scenario

### Natural Gas

#### Others attack us

#### Fiat USFG doesn’t exist – they don’t fiat other countries – don’t exist triggers our impact

#### Failing to prevent a horrible outcome is just as bad as causing it – consequentalism should be prioritized

Nielsen – philosophy prof, Calgary - 93

Kai Nielsen, Professor of Philosophy, University of Calgary, Absolutism and Its Consequentialist Critics, ed. Joram Graf Haber, 1993, p. 170-2

Forget the levity of the example and consider the case of the innocent fat man. If there really is no other way of unsticking our fat man and if plainly, without blasting him out, everyone in the cave will drown, then, innocent or not, he should be blasted out. This indeed overrides the principle that the innocent should never be deliberately killed, but it does not reveal a callousness toward life, for the people involved are caught in a desperate situation in which, if such extreme action is not taken, many lives will be lost and far greater misery will obtain. Moreover, the people who do such a horrible thing or acquiesce in the doing of it are not likely to be rendered more callous about human life and human suffering as a result. Its occurrence will haunt them for the rest of their lives and is as likely as not to make them more rather than less morally sensitive. It is not even correct to say that such a desperate act shows a lack of respect for persons. We are not treating the fat man merely as a means. The fat man's person‑his interests and rights are not ignored. Killing him is something which is undertaken with the greatest reluctance. It is only when it is quite certain that there is no other way to save the lives of the others that such a violent course of action is justifiably undertaken. Alan Donagan, arguing rather as Anscombe argues, maintains that "to use any innocent man ill for the sake of some public good is directly to degrade him to being a mere means" and to do this is of course to violate a principle essential to morality, that is, that human beings should never merely be treated as means but should be treated as ends in themselves (as persons worthy of respect)." But, as my above remarks show, it need not be the case, and in the above situation it is not the case, that in killing such an innocent man we are treating him merely as a means. The action is universalizable, all alternative actions which would save his life are duly considered, the blasting out is done only as a last and desperate resort with the minimum of harshness and indifference to his suffering and the like. It indeed sounds ironical to talk this way, given what is done to him. But if such a terrible situation were to arise, there would always be more or less humane ways of going about one's grim task. And in acting in the more humane ways toward the fat man, as we do what we must do and would have done to ourselves were the roles reversed, we show a respect for his person. In so treating the fat man‑not just to further the public good but to prevent the certain death of a whole group of people (that is to prevent an even greater evil than his being killed in this way)‑the claims of justice are not overriden either, for each individual involved, if he is reasonably correct, should realize that if he were so stuck rather than the fat man, he should in such situations be blasted out. Thus, there is no question of being unfair. Surely we must choose between evils here, but is there anything more reasonable, more morally appropriate, than choosing the lesser evil when doing or allowing some evil cannot be avoided? That is, where there is no avoiding both and where our actions can determine whether a greater or lesser evil obtains, should we not plainly always opt for the lesser evil? And is it not obviously a greater evil that all those other innocent people should suffer and die than that the fat man should suffer and die? Blowing up the fat man is indeed monstrous. But letting him remain stuck while the whole group drowns is still more monstrous. The consequentialist is on strong moral ground here, and, if his reflective moral convictions do not square either with certain unrehearsed or with certain reflective particular moral convictions of human beings, so much the worse for such commonsense moral convictions. One could even usefully and relevantly adapt herethough for a quite different purpose‑an argument of Donagan's. Consequentialism of the kind I have been arguing for provides so persuasive "a theoretical basis for common morality that when it contradicts some moral intuition, it is natural to suspect that intuition, not theory, is corrupt."" Given the comprehensiveness, plausibility, and overall rationality of consequentialism, it is not unreasonable to override even a deeply felt moral conviction if it does not square with such a theory, though, if it made no sense or overrode the bulk of or even a great many of our considered moral convictions, that would be another matter indeed. Anticonsequentialists often point to the inhumanity of people who will sanction such killing of the innocent, but cannot the compliment be returned by speaking of the even greater inhumanity, conjoined with evasiveness, of those who will allow even more death and far greater misery and then excuse themselves on the ground that they did not intend the death and misery but merely forbore to prevent it? In such a context, such reasoning and such forbearing to prevent seems to me to constitute a moral evasion. I say it is evasive because rather than steeling himself to do what in normal circumstances would be a horrible and vile act but in this circumstance is a harsh moral necessity, he allows, when he has the power to prevent it, a situation which is still many times worse. He tries to keep his `moral purity' and avoid `dirty hands' at the price of utter moral failure and what Kierkegaard called `double‑mindedness.' It is understandable that people should act in this morally evasive way but this does not make it right.

### Prolif

# Offcase

## 2AC CP

#### Utopian CP’s are a voter –

1. No lit – There’s nothing to answer made up CP’s making it functionally impossible to answer them because there’s infinite CPs they can make up – that makes debate turn into warrantless nonsense
2. Makes being aff impossible – they can fiat things like world peace or make all the Middle Eastern states give up their nuclear weapons programs which is object fiat and ruin the policy focus of debate – jacks our decision-making skills because we don’t make the hard decision based on literature
3. They’re not allowed to fiat individual mindsets – that is an egregious form of fiat – C/A double bind from C-X – either they get rid of all institutional problems like patriarchy or statism or they don’t solve
4. That’s a voter – egregious CP’s should be rejected to set a standard for the rest of the community

#### Economic rationality is ethical – solves war and environmental collapse – self-interest motivates individuals to sacrifice some autonomy to produce security and protect the rights of others

Aasland ‘9

(Dag, Prof. of Economics @ U of Agder, Norway, Ethics and Economy: After Levinas, pgs. 65-66)

**Business ethics**, in the sense of ethics *for* business, illustrates this: its **perspective is** that of an **‘enlightened self-interest’ where the constraints that are put on the individual, thanks to the ability to see the unfortunate consequences for oneself, postpone** the **‘war’**, in a direct or metaphoric sense of the word (*ibid.*: 70-71). This **enlightened self-interest forms the base not only of** the **market economy, but also of** a social organization and manifestation of **human rights**, and even of some ethical theories. **It is a calculated** and voluntary **renunciation of one’s own freedom in order to obtain** in return **security** and other common goals (*ibid.*: 72). **The fact that economic**, political and legal **theories appeal to enlightened self-interest does not imply**, however, **that we should discard them**. Nor should we reject proclamations of human rights, legal constraints of individual freedom and, for that matter, business ethics, even if they are based on an enlightened self-interest. **It is rather the opposite: such institutions and knowledge are indispensable because the primary quality of** the **enlightened self-interest is that it restricts egocentricity**. Our *practical reason* (which was Kant’s words for the reason that governs our acts, where the moral law is embedded as a principle) includes the knowledge that it can be rational to lay certain restrictions on individual freedom. In this way **practical reason may postpone** (for an indefinite time) **violence** and murder **among people**. **This has** primarily **been the raison-d’être of** politics and **the state, but it is today taken over** more and more **by corporate organizations**, as expressed in the new term for business ethics, as *corporate social responsibility* and *corporate citizenship* (see chapter 2). **Thanks to this ‘postponement of violence’ provided by** politics and **economic rationality, people may unfold their freedom** within the laws and regulations set up by society (Burggraeve, 2003: 77).

#### Perm: The United States federal government should diminish Nuclear Regulatory Commission staffing, manufacturing licensing, emergency planning zone, and safety regulations for Small Modular Reactors to be consistent with the unique attributes of Small Modular Reactors and then The USFG should decentralize into a libertarian municipalism immediately

#### Perm all of their offense – the CP is sufficient to solve all of their impact since it has no links to the plan

#### SMRs key to help poor areas and avert climate change

Rosner & Goldberg, Physics Prof @ U Chicago, ’11

[Robert Rosner, William E. Wrather, Distinguished Service Professor, Departments of Astronomy and Astrophysics, and Physics at The University of Chicago, Director, Energy Policy Institute, Harris School of Public Policy, Stephen Goldberg, Professor of Law Emeritus at Northwestern Law, “Small Modular Reactors – Key to Future Nuclear Power Generation in the U.S.,” Energy Policy Institute at The University of Chicago, November 2011]

As stated earlier, SMRs have the potential to achieve significant greenhouse gas emission reductions. They could provide alternative baseload power generation to facilitate the retirement of older, smaller, and less efficient coal generation plants that would, otherwise, not be good candidates for retrofitting carbon capture and storage technology. They could be deployed in regions of the U.S. and the world that have less potential for other forms of carbon-free electricity, such as solar or wind energy. There may be technical or market constraints, such as projected electricity demand growth and transmission capacity, which would support SMR deployment but not GW-scale LWRs.

#### C/A from C-X there are lots of forms of oppressions such as patriarchy that exist – getting rid of the government doesn’t solve their impact – they can’t access this

#### Perm do both

#### Massive transition wars or rollback – there’s no way that entrenched interests in the US would be ok with breaking down the government

#### Alternatives to capitalism fail – lack of individual choice results in tyranny or failure\*\*\*

Meltzer, Professor of Political Economy at Carnegie Mellon University’s School of Business, Visiting Scholar at the American Enterprise Institute, First Recipient of the AEI Irving Kristol Award, and Chairman of the International Financial Institution Advisory Commission, ‘9 (Allan, March 12, “Why Capitalism?” 2008-2009 Bradley Lecture Series, http://www.aei.org/publications/pubID.29525,filter.all/pub\_detail.asp)

Alternatives to Capitalism Critics of capitalism emphasize their dislike of greed and self-interest. They talk a great deal about social justice and fairness, but they do not propose an acceptable alternative to achieve their ends. The alternatives that have been tried are types of Socialism or Communism or other types of authoritarian rule. Anti-capitalist proposals suffer from two crippling drawbacks. First, they ignore the Kantian principle about human imperfection. Second, they ignore individual differences. In place of individual choice under capitalism, they substitute rigid direction done to achieve some proclaimed end such as equality, fairness, or justice. These ends are not precise and, most important, individuals differ about what is fair and just. In practice, the rulers' choices are enforced, often using fear, terror, prison, or other punishment. The history of the twentieth century illustrates how enforcement of promised ends became the justification for deplorable means. And the ends were not realized. Transferring resource allocation decisions to government bureaus does not eliminate crime, greed, self-dealing, conflict of interest, and corruption. Experience tells us these problems remain. The form may change, but as Kant recognized, the problems continue. Ludwig von Mises recognized in the 1920s that fixing prices and planning resource use omitted an essential part of the allocation problem. Capitalism allocates by letting relative prices adjust to equal the tradeoffs expressed by buyers' demands. Fixing prices eliminates the possibility of efficient allocation and replaces consumer choice with official decisions. Some gain, but others lose; the losers want to make choices other than those that are dictated to them. Not all Socialist societies have been brutal. In the nineteenth century, followers of Robert Owen, the Amana people, and many others chose a Socialist system. Israeli pioneers chose a collectivist system, the kibbutz. None of these arrangements produced sustainable growth. None survived. All faced the problem of imposing allocative decisions that satisfied the decision-making group, sometimes a majority, often not. Capitalism recognizes that where individual wants differ, the market responds to the mass; minorities are free to develop their favored outcome. Walk down the aisles of a modern supermarket. There are products that satisfy many different tastes or beliefs. Theodor Adorno was a leading critic of postwar capitalism as it developed in his native Germany, in Europe, and in the United States. He found the popular culture vulgar, and he distrusted the workers' choices. He wanted a Socialism that he hoped would uphold the values he shared with other intellectuals. Capitalism, he said, valued work too highly and true leisure too little. He disliked jazz, so he was not opposed to Hitler's ban in the 1930s. But Adorno offered no way of achieving the culture he desired other than to impose his tastes on others and ban all choices he disliked. This appealed to people who shared his view. Many preferred American pop culture whenever they had the right to choose. Capitalism permits choices and the freedom to make them. Some radio stations play jazz, some offer opera and symphonies, and many play pop music. Under capitalism, advertisers choose what they sponsor, and they sponsor programs that people choose to hear or watch. Under Socialism, the public watches and hears what someone chooses for them. The public had little choice. In Western Europe change did not come until boats outside territorial limits offered choice. The Templeton Foundation recently ran an advertisement reporting the answers several prominent intellectuals gave to the question: "Does the free market corrode moral character?" Several respondents recognized that free markets operate within a political system, a legal framework, and the rule of law. The slave trade and slavery became illegal in the nineteenth century. Before this a majority enslaved a minority. This is a major blot on the morality of democratic choice that public opinion and the law eventually removed. In the United States those who benefitted did not abandon slave owning until forced by a war. Most respondents to the Templeton question took a mixed stand. The philosopher John Gray recognized that greed and envy are driving forces under capitalism, but they often produce growth and raise living standards so that many benefit. But greed leads to outcomes like Enron and WorldCom that critics take as a characteristic of the system rather than as a characteristic of some individuals that remains under Socialism. Michael Walzer recognized that political activity also corrodes moral character, but he claimed it was regulated more effectively. One of the respondents discussed whether capitalism was more or less likely to foster or sustain moral abuses than other social arrangements. Bernard-Henri Levy maintained that alternatives to the market such as fascism and Communism were far worse. None of the respondents mentioned Kant's view that mankind includes a range of individuals who differ in their moral character. Institutional and social arrangements like democracy and capitalism influence the moral choices individuals make or reject. No democratic capitalist country produced any crimes comparable to the murders committed by Hitler's Germany, Mao's China, or Lenin and Stalin's Soviet Union. As Lord Acton warned, concentrated power corrupts officials. Some use concentrated power to impose their will. Some allow their comrades to act as tyrants. Others proclaim that ends such as equality justify force to control opposition. Communism proclaimed a vision of equality that it never approached. It was unattainable because individuals differ about what is good. And what is good to them and for them is not the same as what is socially desirable to critics of capitalism. Kant's principle warns that utopian visions are unattainable. Capitalism does not offer a vision of perfection and harmony. Democratic capitalism combines freedom, opportunity, growth, and progress with restrictions on less desirable behavior. It creates societies that treat men and women as they are, not as in some utopian vision. In The Open Society and Its Enemies, Karl Popper showed why utopian visions become totalitarian. All deviations from the utopian ideal must be prevented. The Enrons, WorldComs, and others of that kind show that dishonest individuals rise along with honest individuals. Those who use these examples to criticize capitalism do not use the same standard to criticize all governments as failed arrangements when a Watergate or bribery is uncovered. Nor do they criticize government when politicians promise but do not produce or achieve. We live after twenty-five to forty years of talk about energy, education, healthcare, and drugs. Governments promise and propose, but little if any progress is visible on these issues.

#### No scenario for racism to cause extinction – their Riley impact doesn’t make any sense – they need to explain which countries attack which

## 2AC Environmentalism

#### Reversing Obama’s go slow approach on new nuclear technology is necessary to establish presidential leadership on climate

Hansen, Director NASA Goddard Institute, ’11

(NASA’s Hansen Presses Obama for a Carbon Cost and Nuclear Push, dotearth.blogs.nytimes.com/2011/01/24/nasas-hansen-presses-obama-for-a-carbon-cost-and-nuclear-push/?partner=rss&emc=rss)

It would have made good sense to give energy/climate a high priority right at the start. Solving our fossil fuel addiction and altering the course of global warming can be handled with a good overall strategy, but that strategy would not be based on a compromise that has special interests defining the details.That’s why I wrote a letter to Michelle and Barack Obama [in 2008], starting it while stuck in London, where Anniek [Hansen's wife] had a heart attack. John Holdren agreed to deliver the letter, but not until after he was confirmed, so I made it a public letter. I understand that John told the media that he was not free to discuss what he communicated to the President and what reaction he received. In any case, I never heard back anything from the White House. Another reason for concern: the President’s comment on global warming in his 2009 State of the Union message, which began with something to the effect: I know some of you don’t believe in global warming… It is not a matter of belief. Galileo had to accept the reality that whether the Earth orbited the sun or vice versa was a matter of belief (if he did not want to go to an early grave), so he recanted his statements (probably with his fingers crossed). But we are not living in a time when beliefs should trump science. The President should use his ascendancy to the most powerful position on the planet to help set a new sensible course for the planet and humanity. It would have required being blunt and honest about the situation and what was needed to break our addiction and avoid the tremendous inter-generational injustice that the present path will bring to pass. The path to a clean energy future would not be painful for the public, but it requires standing up to special interests who benefit from business-as-usual. It is both a moral issue and a question of where the United States will stand in the future. Our economic standing is going to become second class this century if we do not move smartly toward a clean energy future. No where is the lame middle-of-the-road go-slow compromise approach clearer than in the case of nuclear power. The Administration has been reluctant to admit that the Carter and Clinton/Gore administrations made a huge mistake in pulling the U.S. back from development of advanced nuclear technology. That is the way to make nuclear power safer (nuclear power already has the best safety record of any major industry in the United States) and resistant to weapons proliferation. The approach to nuclear power is to take a few baby steps with current technology. People such as Bill Gates are despairing at the lack of leadership in Washington — investing his own money in development of advanced reactor designs. But even Bill Gates does not have enough money to make up for the lack of dynamic leadership in Washington. If we took advantage of our brainpower (which is rapidly aging!), we could still be the leader in developing safer clean energy for the future and producing a better future for our children, rather than going after the last drop of oil in pristine environments, off-shore, in the tar sands. It is such a purblind foolish approach. We need someone with the courage to stand up to the special interests who have hamstrung U.S. policy, including the minority of anti-nukes who have controlled the energy policy of the Democratic party. We are still waiting for an Abraham Lincoln, a leader who will stand tall. It is a moral matter. Lincoln would not have released half of the slaves…. The other thing not mentioned above is that the most fundamental problem, which I keep repeating, is this: as long as fossil fuels are the cheapest energy, somebody will keep burning them — implication, we must put a rising price on carbon. (Not cap-and-trade! A simple, honest approach — collect a fee from fossil fuel companies at first sale, distribute that money, 100 percent, to the public.) Nevertheless, the easiest thing that he could do, and perhaps the best that we can hope for, is for him to give a strong boost to nuclear power. Unfortunately, he seems to fall prey to Democratic politics on this, rather than being a responsible leader.

#### Presidential leadership to address international climate concerns key to global environmental cooperation

Shepard, Natural Resources/Water Resources University Laboratory Teacher, 10

[U.S. Environmental Policy and Leadership, http://www.brighthub.com/environment/science-environmental/articles/39623.aspx?p=2]

The Bush administration’s failure to see the big picture in reference to global environmental change can clearly be seen in the resulting outcomes of his eight years as president. The withdrawal of the U.S. from the Kyoto treaty is both an important symbol of American isolationism from Europe and a direct link as to why the country (and perhaps the world as a whole) has not reduced greenhouse gas emissions and other pollutants that affect the global environment. The Kyoto agreement is not without flaws but the unwillingness to negotiate, or inaction, was not conducive to a good outcome for the global environment. "Greenhouse" Gases According to the Energy Information Administration (EIA) the United States greenhouse gas emissions went up by 1.4% in 2007. An article in the LA times states carbon dioxide emissions rose by nearly 2.0% in the U.S. in 2007 while Denmark’s went down by 8%, the U.K. and Germany 3%, and France and Australia 2%. Granted, this is only a single year, but considering the breadth of the consequences and that Bush had been in office since 2000, these numbers sum up rather well the effect of his administration on global environmental change. Bush Environmental Policies Overturned The ironic nature of the Bush administration’s response to environmental change is that the best aspect of it is reflected in policy’s that did not take effect. The administration made a habit of changing environmental regulations, many of which have been overturned by the Supreme Court. It's a tribute to our system that these efforts were not allowed to come to fruition. An example is the blocking of “changes to the rules that govern what kind of logging, mining or other activities can be allowed in national forests.” (Shogren, 2007) Carol Browner, head of the EPA in the Clinton administration and Obama energy “czarina”, is quoted as saying: "As dreadful as the Bush administration has been with respect to clean air and forests and all these environmental issues, the courts have been really our savior. And have time and time again in the last years [it has] stepped in." (Shogren, 2007) Another example of Bush environmental policy being thwarted is President Obama’s retracting of regulations inserted by Bush before he left office. One such regulation “would have opened 2 million acres of public land in Wyoming, Colorado, and Utah for oil-shale drilling.” (O'Carroll, 2009) Environment vs. Economy It appears that Bush was mired in the old ways of pitting the environment against the economy. In an April 2008 speech Bush states “The Kyoto Protocol would have required the United States to drastically reduce greenhouse gas emissions. The impact of this agreement, however, would have been to limit our economic growth…” (The White House Office of the Press Secretary, 2008) I maintain that this did not have to be, and that Obama has offered a glaring contrast to this outdated thinking. Obama campaigned on stimulating the economy in part by creating “green” jobs and fostering energy efficiency that will both save money and reduce fossil fuel use. Moving Forward There are numerous goals and programs of the new administration that were never considered by the Bush administration. These include a national Renewable Portfolio Standard, proposing a carbon cap and trade system, and already making it so states such as California can pass their own automobile fuel mileage standards that will likely be followed by other states. One of the biggest and perhaps controversial measures thus far is the April Environmental Protection Agency ruling making carbon dioxide a pollutant. A fairly novel idea being studied is to provide incentives for land owners (and money for planting in government owned forest land) to plant trees that can provide sinks for carbon. This is being carried out by a new department called the Office of Ecosystem Services and Markets. (Wilkinson, 2009) Will Obama Meet New Standards? Even with these goals and very early achievements it is unclear if the overall “political will”, no matter how different from the last eight years, is sufficient to tackle the challenges of global environmental change, particularly when the will of the presidential administration may not be enough. There are many representatives who do not share Obama’s enthusiasm for environmental issues. As pointed out previously, there have already been compromises made that have decreased funding for environmental initiatives. The American people can help by not letting the environmental agenda once again take a back seat, though only time will tell just how strong the will and influence of the Obama administration is. Opportunity for Leadership in Copenhagen The U.S. is the world superpower. I argue that the latest world economic troubles only serve to accentuate the extent to which this is true, as economies of the world are suffering due to the domino effect triggered by the collapse of the U.S. housing market. The Kyoto treaty was only a piece of paper without the U.S. on board. The other major polluting nations such as China and India will not take the problem of global environmental change seriously until America does. Copenhagen is a chance to right the ship before it is too late. Our nation is just as capable of steering the ship in the right direction as it is in the wrong direction. This means allowing Earth to take the helm, and remembering humanity adapts to her, not her to humanity. Update: Copenhagen; What happened? Dissapointment seems to be the predominant reaction from environmental organizations to the Copenhagen Climate Summit. Indeed, no binding agreement, or even a pledge to make a binding agreement in 2010 was achieved. This was not, however, the true test of the Obama administration's environmental policy. The real test is whether Obama can get a legitimate climate bill through the Senate. U.S. environmental leadership can still be the beacon it needs to be with a strong message from our lawmakers.

#### K2 environmental governance

Esty & Ivanova, Director Yale Center Environmental Policy, 08

[Daniel C. Esty, Hillhouse Professor of Environmental Law and Policy at Yale University, Director of the Yale Center for Environmental Law and Policy and the Center for Business & Environment at Yale, Maria Ivanova, Assistant Professor of Government and Environmental Policy at The College of William and Mary and the Director of the Global Environmental Governance Project at the Yale Center for Environmental Law and Policy, “Reclaiming U.S. Leadership in Global Environmental Governance,” SAIS Review, Volume 28, Number 2, Summer-Fall 2008, pp. 57-75]

The Bush Administration’s “go-it-alone” strategy in security issues has mirrored a similar unilateralism in the international environmental domain. Once a leader in international environmental policy, the United States has lost much of its political influence today. What is more, U.S. withdrawal from multilateralism has left the United Nations—the imperfect but important instrument for international cooperation—“in limbo, neither strengthened nor abandoned,”1 threatening the ability of the world community to resolve fundamental global problems. Two key dynamics now mark international environmental policy. First, while it is widely recognized that U.S. engagement and cooperation is not just important, but historically seen as essential for progress, other nations today seem willing to move ahead with or without the United States. Germany, for example, announced a national greenhouse gas emissions reduction target of 40 percent by 2020 and threatened to boycott the U.S. “major emitters” initiative launched outside the Kyoto framework. That the United States could have gotten itself crosswise with so many other nations on so many issues is unprecedented. As Jonathan Lash, President of the World Resources Institute, recently observed, the extraordinary degree of anger and confrontation on environmental matters “reflects increasing alarm on climate change and the level of frustration with the U.S.”2 At the same time, many U.S. governors and mayors have launched state and local initiatives to reduce greenhouse gas emissions. Governor Arnold Schwarzenegger in California has gone so far as to open talks with the European Union on how to link his state-level initiatives with Europe’s emerging carbon market. Second, the Bush Administration’s reflexive unilateralism on international concerns—whether environmental, economic, or security—represents a break with the prevailing presumption since World War II favoring cooperation [End Page 58] and multilateralism through NATO, OECD, and other regional bodies, if not the UN. The “go-it-alone” approach is especially difficult to justify on issues that are inescapably global in scope, such as climate change. Even if the United States were able to eliminate its greenhouse gas emissions entirely, climate change would not be stopped. The build-up of atmospheric concentrations of carbon dioxide driven by rising emissions in China, India, Indonesia, and other developing countries would continue, leaving the United States exposed to the threat of global warming, increased intensity of windstorms, altered rainfall patterns, melting ice caps, and rising sea levels. These dynamics beg two questions: Can progress on any of the difficult global environmental issues be achieved without the participation and leadership of the United States? Conversely, can the United States shoulder the burden of addressing such concerns without the cooperation of the rest of the global community? In this article, we address these core questions. We argue that the next President of the United States must re-engage with other nations. Success in protecting the planet from climate change cannot be achieved by the United States acting on its own. International cooperation is essential. Similar collaborative efforts at the global scale will be required to protect the planet’s biological diversity, restore the vibrancy of the world’s fisheries, prevent the spread of persistent organic pollutants, conserve forests, and other issues that are inescapably trans-boundary in nature. We contend, moreover, that not only is U.S. participation critical, but U.S. leadership is crucial and necessary to achieve successful environmental outcomes. The U.S. environmental footprint is larger than any other country’s. The United States consumes a disproportionate share of the world’s energy and natural resources. With less than 5 percent of the world population, the United States uses 25 percent of the world’s fossil fuel resources—accounting for nearly 25 percent of the world’s annual coal burning, 26 percent of the world’s oil, and 27 percent of the world’s natural gas.3 It also accounts for 18.5 percent of the consumption of global forestry products and 13.7 percent of the world’s water usage. The United States is in a unique position. Given its economic and strategic power as well as its financial and technological prowess, U.S. leadership could influence international environmental policy and promote effective environmental governance. Conversely, the record of the past fifteen years has demonstrated that “when the United States declines to exercise leadership, the impact is significant.”4 Little progress is made without the United States. Reasserting global environmental leadership, however, will not be easy for the next U.S. president. There are considerable domestic challenges [End Page 59] as the U.S. public remains deeply ambivalent about international entanglements and international organizations—even those related to protecting the planet.

#### 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?

#### Green consumption fails – can’t solve MNCs or efficiency problems – production-focused globalization is key

Dauvergne – Canada Chair in Environmental Politics – 8

(Peter, Professor of Political Science, Canada Research Chair in Global Environmental Politics, and Director of the Liu Institute for Global Issues at the University of British Columbia, The Shadows of Consumption:

Consequences for the Global Environment, pgs. 16-17)

Of course, to some extent every consumer is responsible, although not all share equal responsibility. Those with power and wealth are consuming far more of the world’s ecological resources: a life of luxury in Philadelphia deflects more environmental damage farther than a life of poverty in Harare. Still, no single consumer, no matter how wasteful or profligate, can cause an ecological shadow to form or shift direction, although this does not absolve consumers who ignore the effects of their personal choices on the sustainability of life for others. Accepting that these effects are “real” is essential for sustaining the collective will for reforms. Yet far-reaching change will require far more than educating some consumers in some cultures to consume a few things more thoughtfully. As this chapter reveals, it will require tackling structural features of a world order that deflects environmental costs of consumption into spaces with relatively less power. In particular, governing mechanisms will need to guide globalization more effectively, strengthening environmentalism in ways that rein in the shadow effects of corporations, trade, financing, and local policies. Immediate action is imperative. As the global population races toward 9–11 billion, worldwide economic growth shows every sign of racing even faster, global consumerism every sign of consolidating further, and the next wave of globalization every sign of increasing both the scale and the speed of the ecological changes brought about by the shifting global patterns of consumption. In all likelihood, the globalization of environmentalism will continue both to improve the efficiency of producing, using, and recycling consumer goods and to promote further advances in global governance, from greener corporate codes of conduct, to stricter international environmental laws, to stronger cultural norms of “appropriate” consumption. But, as things now stand, and as chapter 23 will elaborate in the conclusion to this book, it will do so at a pace that is too slow and too incremental to prevent the intensity and spread of ecological shadows from escalating. The costs to the global environment and human health, as chapter 2 will make clear, are already too great not to take immediate action.

## 2AC Coal Shift

#### Turn – the CP causes coal fill-in – that’s 100x worse for the environment – critiques of nuke production are idealistic and treat the energy in a vacuum, not in context

Monbiot ‘11

(George, columnist for The Guardian, has held visiting fellowships or professorships at the universities of Oxford (environmental policy), Bristol (philosophy), Keele (politics), Oxford Brookes (planning), and East London (environmental science), March 21, 2011, “Why Fukushima made me stop worrying and love nuclear power”, http://www.guardian.co.uk/commentisfree/2011/mar/21/pro-nuclear-japan-fukushima)

But the energy source to which most economies will revert if they shut down their nuclear plants is not wood, water, wind or sun, but fossil fuel. On every measure (climate change, mining impact, local pollution, industrial injury and death, even radioactive discharges) coal is 100 times worse than nuclear power. Thanks to the expansion of shale gas production, the impacts of natural gas are catching up fast. Yes, I still loathe the liars who run the nuclear industry. Yes, I would prefer to see the entire sector shut down, if there were harmless alternatives. But there are no ideal solutions. Every energy technology carries a cost; so does the absence of energy technologies. Atomic energy has just been subjected to one of the harshest of possible tests, and the impact on people and the planet has been small. The crisis at Fukushima has converted me to the cause of nuclear power.

#### Extinction

Hansen, Director of Nasa's Goddard Institute for Space Studies, 09

(Coal-fired power stations are death factories. Close them, www.guardian.co.uk/commentisfree/2009/feb/15/james-hansen-power-plants-coal

A year ago, I wrote to Gordon Brown asking him to place a moratorium on new coal-fired power plants in Britain. I have asked the same of Angela Merkel, Barack Obama, Kevin Rudd and other leaders. The reason is this - coal is the single greatest threat to civilisation and all life on our planet. The climate is nearing tipping points. Changes are beginning to appear and there is a potential for explosive changes, effects that would be irreversible, if we do not rapidly slow fossil-fuel emissions over the next few decades. As Arctic sea ice melts, the darker ocean absorbs more sunlight and speeds melting. As the tundra melts, methane, a strong greenhouse gas, is released, causing more warming. As species are exterminated by shifting climate zones, ecosystems can collapse, destroying more species. The public, buffeted by weather fluctuations and economic turmoil, has little time to analyse decadal changes. How can people be expected to evaluate and filter out advice emanating from those pushing special interests? How can people distinguish between top-notch science and pseudo-science? Those who lead us have no excuse - they are elected to guide, to protect the public and its best interests. They have at their disposal the best scientific organisations in the world, such as the Royal Society and the US National Academy of Sciences. Only in the past few years did the science crystallise, revealing the urgency. Our planet is in peril. If we do not change course, we'll hand our children a situation that is out of their control. One ecological collapse will lead to another, in amplifying feedbacks. The amount of carbon dioxide in the air has already risen to a dangerous level. The pre-industrial carbon dioxide amount was 280 parts per million (ppm). Humans, by burning coal, oil and gas, have increased this to 385 ppm; it continues to grow by about 2 ppm per year. Earth, with its four-kilometre-deep oceans, responds only slowly to changes of carbon dioxide. So the climate will continue to change, even if we make maximum effort to slow the growth of carbon dioxide. Arctic sea ice will melt away in the summer season within the next few decades. Mountain glaciers, providing fresh water for rivers that supply hundreds of millions of people, will disappear - practically all of the glaciers could be gone within 50 years - if carbon dioxide continues to increase at current rates. Coral reefs, harbouring a quarter of ocean species, are threatened. The greatest danger hanging over our children and grandchildren is initiation of changes that will be irreversible on any time scale that humans can imagine. If coastal ice shelves buttressing the west Antarctic ice sheet continue to disintegrate, the sheet could disgorge into the ocean, raising sea levels by several metres in a century. Such rates of sea level change have occurred many times in Earth's history in response to global warming rates no higher than those of the past 30 years. Almost half of the world's great cities are located on coastlines. The most threatening change, from my perspective, is extermination of species. Several times in Earth's history, rapid global warming occurred, apparently spurred by amplifying feedbacks. In each case, more than half of plant and animal species became extinct. New species came into being over tens and hundreds of thousands of years. But these are time scales and generations that we cannot imagine. If we drive our fellow species to extinction, we will leave a far more desolate planet for our descendants than the world we inherited from our elders. Clearly, if we burn all fossil fuels, we will destroy the planet we know. Carbon dioxide would increase to 500 ppm or more. We would set the planet on a course to the ice-free state, with sea level 75 metres higher. Climatic disasters would occur continually. The tragedy of the situation, if we do not wake up in time, is that the changes that must be made to stabilise the atmosphere and climate make sense for other reasons. They would produce a healthier atmosphere, improved agricultural productivity, clean water and an ocean providing fish that are safe to eat. Fossil-fuel reservoirs will dictate the actions needed to solve the problem. Oil, of which half the readily accessible reserves have already been burnt, is used in vehicles, so it's impractical to capture the carbon dioxide. This is likely to drive carbon dioxide levels to at least 400 ppm. But if we cut off the largest source of carbon dioxide - coal - it will be practical to bring carbon dioxide back to 350 ppm, lower still if we improve agricultural and forestry practices, increasing carbon storage in trees and soil. Coal is not only the largest fossil fuel reservoir of carbon dioxide, it is the dirtiest fuel. Coal is polluting the world's oceans and streams with mercury, arsenic and other dangerous chemicals. The dirtiest trick that governments play on their citizens is the pretence that they are working on "clean coal" or that they will build power plants that are "capture-ready" in case technology is ever developed to capture all pollutants. The trains carrying coal to power plants are death trains. Coal-fired power plants are factories of death. When I testified against the proposed Kingsnorth power plant, I estimated that in its lifetime it would be responsible for the extermination of about 400 species - its proportionate contribution to the number that would be committed to extinction if carbon dioxide rose another 100 ppm

## 2AC Grid DA

#### Meltdowns defense

#### Disruption of the grid is inevitable – shift to SMR solves DOD power

Robitaille, Army Environmental Center, ’12

[George E. Robitaille, Department of Army Civilian, US Army Environmental Center, Master of Strategic Studies from The US Army War College, “Small Modular Reactors: The Army’s Secure Source of Energy?,” March 21st 2012]

According to a recent report by the Defense Science Board, the DoD gets ninety nine percent of their electrical requirements from the civilian electric grid. The electric grid, as it is currently configured and envisioned to operate for the foreseeable future, may not be reliable enough to ensure an uninterrupted flow of electricity for our critical military facilities given the influences of the aging infrastructure, its susceptibility to severe weather events, and the potential for cyber attacks. The DoD dependency on the grid is reflected in the $4.01 Billion spent on facilities energy in fiscal year 2010, the latest year which data was available.4 The electricity used by military installations amounts to $3.76 billion.5 As stated earlier, the DoD relies on the commercial grid to provide a secure source of energy to support the operations that ensure the security of our nation and it may not be available when we need it. The system could be taken down for extended periods of time by failure of aging components, acts of nature, or intentionally by cyber attacks. Aging Infrastructure. The U.S electric power grid is made up of independently owned power plants and transmission lines. The political and environmental resistance to building new electric generating power plants combined with the rise in consumption and aging infrastructure increases the potential for grid failure in the future. There are components in the U.S. electric grid that are over one hundred years old and some of the recent outages such as the 2006 New York blackout can be directly attributed to this out of date, aging infrastructure.6 Many of the components of this system are at or exceeding their operational life and the general trend of the utility companies is to not replace power lines and other equipment until they fail. 7 The government led deregulation of the electric utility industry that started in the mid 1970s has contributed to a three decade long deterioration of the electric grid and an increased state of instability. Although significant investments are being made to upgrade the electric grid, the many years of prior neglect will require a considerable amount of time and funding to bring the aging infrastructure up to date. Furthermore, the current investment levels to upgrade the grid are not keeping up with the aging system.8 In addition, upgrades to the digital infrastructure which were done to increase the systems efficiency and reliability, have actually made the system more susceptible to cyber attacks. Because of the aging infrastructure and the impacts related to weather, the extent, as well as frequency of failures is expected to increase in the future. Adverse Weather. According to a 2008 grid reliability report by the Edison Electric Institute, sixty seven per cent of all power outages are related to weather. Specifically, lightning contributed six percent, while adverse weather provided thirty one percent and vegetation thirty percent (which was predominantly attributed to wind blowing vegetation into contact with utility lines) of the power outages.10 In 1998 a falling tree limb damaged a transformer near the Bonneville Dam in Oregon, causing a cascade of related black-outs across eight western states.11 In August of 2003 the lights went out in the biggest blackout in North America, plunging over fifty million people into darkness over eight states and two Canadian provinces. Most areas did not have power restored four or five days. In addition, drinking water had to be distributed by the National Guard when water pumping stations and/or purification processes failed. The estimated economic losses associated with this incident were about five billion dollars. Furthermore, this incident also affected the operations of twenty two nuclear plants in the United States and Canada.12 In 2008, Hurricane Ike caused approximately seven and a half million customers to lose power in the United States from Texas to New York.13 The electric grid suffered numerous power outages every year throughout the United States and the number of outages is expected to increase as the infrastructure ages without sufficient upgrades and weather-related impacts continue to become more frequent. Cyber Attacks. The civilian grid is made up of three unique electric networks which cover the East, West and Texas with approximately one hundred eighty seven thousand miles of power lines. There are several weaknesses in the electrical distribution infrastructure system that could compromise the flow of electricity to military facilities. The flow of energy in the network lines as well as the main distribution hubs has become totally dependent on computers and internet-based communications. Although the digital infrastructure makes the grid more efficient, it also makes it more susceptible to cyber attacks. Admiral Mr. Dennis C. Blair (ret.), the former Director of National Intelligence, testified before Congress that “the growing connectivity between information systems, the Internet, and other infrastructures creates opportunities for attackers to disrupt telecommunications, electrical power, energy pipelines, refineries, financial networks, and other critical infrastructures.14” The Intelligence Community assesses that a number of nations already have the technical capability to conduct such attacks.15 In the 2009 report, Annual Threat Assessment of the Intelligence Community for the Senate Armed Services Committee, Adm. Blair stated that “Threats to cyberspace pose one of the most serious economic and national security challenges of the 21st Century for the United States and our allies.”16 In addition, the report highlights a growing array of state and non-state actors that are targeting the U.S. critical infrastructure for the purpose of creating chaos that will subsequently produce detrimental effects on citizens, commerce, and government operations. These actors have the ability to compromise, steal, change, or completely destroy information through their detrimental activities on the internet.17 In January 2008, US Central Intelligence Agency senior analyst Tom Donahue told a gathering of three hundred international security managers from electric, water, oil & gas, and other critical industry, that data was available from multiple regions outside the United States, which documents cyber intrusions into utilities. In at least one case (outside the U.S.), the disruption caused a power outage affecting multiple cities. Mr. Donahue did not specify who executed these attacks or why, but did state that all the intrusions were conducted via the Internet.18 During the past twenty years, advances in computer technologies have permeated and advanced all aspects of our lives. Although the digital infrastructure is being increasingly merged with the power grid to make it more efficient and reliable, it also makes it more vulnerable to cyber attack. In October 2006, a foreign hacker invaded the Harrisburg, PA., water filtration system and planted malware.19 In June 2008, the Hatch nuclear power plant in Georgia shut down for two days after an engineer loaded a software update for a business network that also rebooted the plant's power control system. In April 2009, The Wall Street Journal reported that cyber spies had infiltrated the U.S. electric grid and left behind software that could be used to disrupt the system. The hackers came from China, Russia and other nations and were on a “fishing expedition” to map out the system. 20 According to the secretary of Homeland Security, Janet Napolitano at an event on 28 October 2011, cyber–attacks have come close to compromising the country’s critical infrastructure on multiple occasions.21 Furthermore, during FY11, the United States Computer Emergency Readiness Team took action on more than one hundred thousand incident reports by releasing more than five thousand actionable cyber security alerts and information products.22 The interdependence of modern infrastructures and digital based systems makes any cyber attacks on the U.S. electric grid potentially significant. The December 2008 report by the Commission on Cyber Security for the forty fourth Presidency states the challenge plainly: “America’s failure to protect cyberspace is one of the most urgent national security problems facing the new administration”.23 The susceptibility of the grid to being compromised has resulted in a significant amount of resources being allocated to ensuring the systems security. Although a substantial amount of resources are dedicated to protecting the nation’s infrastructure, it may not be enough to ensure the continuous flow of electricity to our critical military facilities. SMRs as they are currently envisioned may be able to provide a secure and independent alternative source of electricity in the event that the public grid is compromised. SMRs may also provide additional DoD benefit by supporting the recent government initiatives related to energy consumption and by circumventing the adverse ramifications associated with building coal or natural gas fired power plants on the environment.

#### Compromises US national security – Only SMRs solve – deters attacks

Andres & Breetz, Security Prof @ National War College, ’11

[Richard B. Andres, Professor of National Security Strategy at the National War College, Senior Fellow and Energy and Environmental Security and Policy Chair in the Center for Strategic Research, Institute for National Strategic Studies, at the National Defense University, Hanna L. Breetz, Political Science PhD Candidate at MIT, “Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications,” Strategic Forum, INSS, February 2011]

The DOD interest in small reactors derives largely from problems with base and logistics vulnerability. Over the last few years, the Services have begun to reexamine virtually every aspect of how they generate and use energy with an eye toward cutting costs, decreasing carbon emissions, and reducing energy-related vulnerabilities. These actions have resulted in programs that have significantly reduced DOD energy consumption and greenhouse gas emissions at domestic bases. Despite strong efforts, however, two critical security issues have thus far proven resistant to existing solutions: bases’ vulnerability to civilian power outages, and the need to transport large quantities of fuel via convoys through hostile territory to forward locations. Each of these is explored below. Grid Vulnerability. DOD is unable to provide its bases with electricity when the civilian electrical grid is offline for an extended period of time. Currently, domestic military installations receive 99 percent of their electricity from the civilian power grid. As explained in a recent study from the Defense Science Board:

DOD’s key problem with electricity is that critical missions, such as national strategic awareness and national command authorities, are almost entirely dependent on the national transmission grid . . . [which] is fragile, vulnerable, near its capacity limit, and outside of DOD control. In most cases, neither the grid nor on-base backup power provides sufficient reliability to ensure continuity of critical national priority functions and oversight of strategic missions in the face of a long term (several months) outage. The grid’s fragility was demonstrated during the 2003 Northeast blackout in which 50 million people in the United States and Canada lost power, some for up to a week, when one Ohio utility failed to properly trim trees. The blackout created cascading disruptions in sewage systems, gas station pumping, cellular communications, border check systems, and so forth, and demonstrated the interdependence of modern infrastructural systems.8 More recently, awareness has been growing that the grid is also vulnerable to purposive attacks. A report sponsored by the Department of Homeland Security suggests that a coordinated cyberattack on the grid could result in a third of the country losing power for a period of weeks or months.9 Cyberattacks on critical infrastructure are not well understood. It is not clear, for instance, whether existing terrorist groups might be able to develop the capability to conduct this type of attack. It is likely, however, that some nation-states either have or are working on developing the ability to take down the U.S. grid. In the event of a war with one of these states, it is possible, if not likely, that parts of the civilian grid would cease to function, taking with them military bases located in affected regions. Government and private organizations are currently working to secure the grid against attacks; however, it is not clear that they will be successful. Most military bases currently have backup power that allows them to function for a period of hours or, at most, a few days on their own. If power were not restored after this amount of time, the results could be disastrous. First, military assets taken offline by the crisis would not be available to help with disaster relief. Second, during an extended blackout, global military operations could be seriously compromised; this disruption would be particularly serious if the blackout was induced during major combat operations. During the Cold War, this type of event was far less likely because the United States and Soviet Union shared the common understanding that blinding an opponent with a grid blackout could escalate to nuclear war. America’s current opponents, however, may not share this fear or be deterred by this possibility. In 2008, the Defense Science Board stressed that DOD should mitigate the electrical grid’s vulnerabilities by turning military installations into “islands” of energy self-sufficiency.10 The department has made efforts to do so by promoting efficiency programs that lower power consumption on bases and by constructing renewable power generation facilities on selected bases. Unfortunately, these programs will not come close to reaching the goal of islanding the vast majority of bases. Even with massive investment in efficiency and renewables, most bases would not be able to function for more than a few days after the civilian grid went offline. Unlike other alternative sources of energy, small reactors have the potential to solve DOD’s vulnerability to grid outages. Most bases have relatively light power demands when compared to civilian towns or cities. Small reactors could easily support bases’ power demands separate from the civilian grid during crises. In some cases, the reactors could be designed to produce enough power not only to supply the base, but also to provide critical services in surrounding towns during long-term outages. Strategically, islanding bases with small reactors has another benefit. One of the main reasons an enemy might be willing to risk reprisals by taking down the U.S. grid during a period of military hostilities would be to affect ongoing military operations. Without the lifeline of intelligence, communication, and logistics provided by U.S. domestic bases, American military operations would be compromised in almost any conceivable contingency. Making bases more resilient to civilian power outages would reduce the incentive for an opponent to attack the grid. An opponent might still attempt to take down the grid for the sake of disrupting civilian systems, but the powerful incentive to do so in order to win an ongoing battle or war would be greatly reduced.

#### The US will lashout with nuclear weapons

Lawson, Professor of Communication at Utah, 09

(Cross-Domain Response to Cyber Attacks and the Threat of Conflict, 5/13, http://www.seanlawson.net/?p=477)

At a time when it seems impossible to avoid the seemingly growing hysteria over the threat of cyber war,[1] network security expert Marcus Ranum delivered a refreshing talk recently, “The Problem with Cyber War,” that took a critical look at a number of the assumptions underlying contemporary cybersecurity discourse in the United States. He addressed one issue in partiuclar that I would like to riff on here, the issue of conflict escalation–i.e. the possibility that offensive use of cyber attacks could escalate to the use of physical force. As I will show, his concerns are entirely legitimate as current U.S. military cyber doctrine assumes the possibility of what I call “cross-domain responses” to cyberattacks. Backing Your Adversary (Mentally) into a Corner Based on the premise that completely blinding a potential adversary is a good indicator to that adversary that an attack is iminent, Ranum has argued that “The best thing that you could possibly do if you want to start World War III is launch a cyber attack. [...] When people talk about cyber war like it’s a practical thing, what they’re really doing is messing with the OK button for starting World War III. We need to get them to sit the f-k down and shut the f-k up.” [2] He is making a point similar to one that I have made in the past: Taking away an adversary’s ability to make rational decisions could backfire. [3] For example, Gregory Witol cautions that “attacking the decision maker’s ability to perform rational calculations may cause more problems than it hopes to resolve.. Removing the capacity for rational action may result in completely unforeseen consequences, including longer and bloodier battles than may otherwise have been.” [4] Cross-Domain Response So, from a theoretical standpoint, I think his concerns are well founded. But the current state of U.S. policy may be cause for even greater concern. It’s not just worrisome that a hypothetical blinding attack via cyberspace could send a signal of imminent attack and therefore trigger an irrational response from the adversary. What is also cause for concern is that current U.S. policy indicates that “kinetic attacks” (i.e. physical use of force) are seen as potentially legitimate responses to cyber attacks. Most worrisome is that current U.S. policy implies that a nuclear response is possible, something that policy makers have not denied in recent press reports. The reason, in part, is that the U.S. defense community has increasingly come to see cyberspace as a “domain of warfare” equivalent to air, land, sea, and space. The definition of cyberspace as its own domain of warfare helps in its own right to blur the online/offline, physical-space/cyberspace boundary. But thinking logically about the potential consequences of this framing leads to some disconcerting conclusions. If cyberspace is a domain of warfare, then it becomes possible to define “cyber attacks” (whatever those may be said to entail) as acts of war. But what happens if the U.S. is attacked in any of the other domains? It retaliates. But it usually does not respond only within the domain in which it was attacked. Rather, responses are typically “cross-domain responses”–i.e. a massive bombing on U.S. soil or vital U.S. interests abroad (e.g. think 9/11 or Pearl Harbor) might lead to air strikes against the attacker. Even more likely given a U.S. military “way of warfare” that emphasizes multidimensional, “joint” operations is a massive conventional (i.e. non-nuclear) response against the attacker in all domains (air, land, sea, space), simultaneously. The possibility of “kinetic action” in response to cyber attack, or as part of offensive U.S. cyber operations, is part of the current (2006) National Military Strategy for Cyberspace Operations [5]: (U) Kinetic Actions. DOD will conduct kinetic missions to preserve freedom of action and strategic advantage in cyberspace. Kinetic actions can be either offensive or defensive and used in conjunction with other mission areas to achieve optimal military effects. Of course, the possibility that a cyber attack on the U.S. could lead to a U.S. nuclear reply constitutes possibly the ultimate in “cross-domain response.” And while this may seem far fetched, it has not been ruled out by U.S. defense policy makers and is, in fact, implied in current U.S. defense policy documents. From the National Military Strategy of the United States (2004): “The term WMD/E relates to a broad range of adversary capabilities that pose potentially devastating impacts. WMD/E includes chemical, biological, radiological, nuclear, and enhanced high explosive weapons as well as other, more asymmetrical ‘weapons’. They may rely more on disruptive impact than destructive kinetic effects. For example, cyber attacks on US commercial information systems or attacks against transportation networks may have a greater economic or psychological effect than a relatively small release of a lethal agent.” [6] The authors of a 2009 National Academies of Science report on cyberwarfare respond to this by saying, “Coupled with the declaratory policy on nuclear weapons described earlier, this statement implies that the United States will regard certain kinds of cyberattacks against the United States as being in the same category as nuclear, biological, and chemical weapons, and thus that a nuclear response to certain kinds of cyberattacks (namely, cyberattacks with devastating impacts) may be possible. It also sets a relevant scale–a cyberattack that has an impact larger than that associated with a relatively small release of a lethal agent is regarded with the same or greater seriousness.” [7]

#### No impact to meltdowns

Strupczewski, Institute of Atomic Energy, 03

[1/28/03, A., Institute of Atomic Energy, Swierk, Poland, Applied Energy, “Accident risks in nuclear-power plants,” vol. 75, ScienceDirect]

\*\*\*NPP = nuclear-power plant

\*\*\*TMI = Three Mile Island

\*\*\*OECD = Organisation for Economic Co-operation and Development

1. Safety goals for nuclear power The general safety objective for nuclear-power plants (NPPs) is to protect the individual, society and the environment by establishing and maintaining in NPPs effective measures against radiological hazards. To reach this objective, safety goals for nuclear power were established from the very beginning of its development, and made more demanding as the technology matured. The initial qualitative targets were that no individual should bear a significant additional risk due to nuclear-power plant operation and the societal risks from power-plant operation should not be a significant addition to other societal risks [1]. They were followed by quantitative requirements, which according to US rules set the design targets so that the calculated plant core-damage frequency (CDF) should be less than 10-4 events per reactor year (R–Y) [2], and the calculated large release frequency (LRF) less than 10-6/R–Y for sequences resulting in a greater than 0.25 Sv whole-body dose over 24 h at one-half mile from the reactor. These requirements for NPP design corresponded to the cancer risk to the people in the critical population group equal to 10-10/R–Y [3]. Presently the safety objectives developed by the US and European utilities for the new generation of NPPs include a maximum permissible CDF equal to 10-5/R–Y [4]. It must also be demonstrated that early containment failure is avoided for all risk-significant scenarios. The cumulative LRF must be less than 10-6/R–Y. In parallel with the development of these targets, the nuclear industry and regulators in the countries leading in nuclear safety have developed the contemporary nuclear safety philosophy, which resulted in reducing risks in NPPs far below those risks typical for other power-industry branches. It places the principle ‘safety first’ as its cornerstone and includes several principles that are today the basis of NPP design and operation in all western countries. 2. Nuclear-power plant safety indicators The progress in the safety level of NPPs is reflected in the probabilistic safety analyses (PSAs), initiated in the US in 1975 by the Rasmussen Study and systematically developed to become standard tools used for safety analysis of every NPP. The importance of PSA in the evaluation of NPP safety is due to the fact that there has been only one severe core damage accident in water-moderated reactors, namely the Three Mile Island accident in the USA in 1978, so there are no historical statistical data as for coal-mine accidents, oil-transport accidents, gas explosions or dam breaks. Minor incidents that do happen in NPPs, although they are eagerly publicized by the media, usually are far below the level at which any hazard to the plant or the public would be involved. Moreover, in view of fast improvements of NPP technology, the analysis of the safety of the plants to be built cannot be based on historical experience with the plants put into operation 20 or even 10 years ago, but must reflect the actual safety features of the upgraded new designs. PSA makes it possible to study the new design features and evaluate which of the safety improvements will bring the required safety upgrading. The main condition for preventing massive releases of radioactivity is to maintain the reactor containment integrity, first of all in the early stage of the accident, then in the later stages when the releases of radioactivity would be less but still significant. In the middle of the 1990s, several mechanisms were considered as possible contributors to an early containment failure. Over the last decade, the intensive research and development of the technical means of coping with severe accidents have resulted in our being able to treat these issues as resolved. The results of several reactor-safety studies performed in Western countries show that the safety of the modern NPPs is very high. For example the German risk-study phase B [5] indicated that the frequency of core melt in Biblis B NPP was 10-4/(R– Y) and that of large radioactive releases 2.6x10-5/(R–Y). After taking into account operator actions preventing the reactor’s pressure-vessel melt-through under high pressure, the frequency of the core melt frequency was reduced to 2.6x10-6/(R–Y). Subsequent analyses performed for KONVOI plants [6] gave similar results, with absolute numbers lower due to improvements in the KONVOI type plants as compared to the Biblis B. Core-damage frequency without bleed and feed in KONVOI plants was 1.4x10-6/R–Y, and after considering the effects of operator actions in those plants, the CDF was reduced to 3.5x10-7/R–Y. These results can be considered as typical for modern PWRs. The project for the European Pressurized-Water Reactor (EPR) assumes that the design will limit the maximum possible releases so that the following safety objectives will be reached: 1. No need for short-term (about 24 h) off-site countermeasures 2. No need for population evacuation beyond 2–3 km 3. For long-term countermeasures, limited restriction of the consumption of agricultural products for a limited period (about 1 year) in a limited area is acceptable [7]. This is the level of safety of NPPs expected as a reference base in the future. Specific designs, which have been already licensed for construction, include reactors with passive safety-features AP 600 or Advanced BWR [8], for which the CDF is below 2x10-7/R–Y. The releases of radioactivity are at least ten times smaller and the health risks are negligible. 3. Radiological effects of nuclear-power plant accidents The level of safety of modern NPPs is surprisingly far from the mass-media picture of consequences of a nuclear accident. Actually, the only accidents with radioactive releases in NPPs were those in TMI and in Chernobyl. In TMI there was a reactor-core melt, but the integrity of the remaining barriers (reactor pressure vessel and containment) was maintained and the releases were so limited that the average effective dose to the public was 0.015 mSv [9]. The corresponding cancer risk was below 10-6 per lifetime, less than the risk due to NORMAL yearly emissions from a coal-fired power plant at that time [10], and no health effects have ever been identified. In Chernobyl, the quantities of released fission products were significant, from 100% of noble gases down to about 4% of solid fission-products. The doses in the early phase after the accident were high. In the rescue team, 28 men died in consequence of exposure to radiation and several more of those who were treated for radiation sickness died from illnesses that may have been associated with their exposure. However, as confirmed in the UNSCEAR report of 2000, there has been no statistically significant increase in the incidence of leukaemia or any other form of cancer among workers or the public (except for child thyroid cancer), nor of deformities of babies born to members of the public [11]. An increase in the incidence of occult thyroid cancer was predicted to occur after 10 years, but actually it was found already in the first year after the accident [11]. This shows that the screening effect can be largely responsible for this observed increase. Generally the occult thyroid cancer is not fatal and can be successfully treated. Although some 2000 cases of thyroid cancer are attributed to the accident, less than 10 fatal cases have been observed. Much greater damage to health has been caused by well meaning but misguided attempts to protect and help people living near Chernobyl at the time of the accident. The evacuation of hundreds of thousands of them is now seen as an over reaction, which in many cases did more harm than good. The first reaction was to move people out. Only later, was it realized that many of them had not needed to be moved. The relocation of people destroyed communities, broke up families, and led to unemployment, depression, hypochondria and stress-related illnesses. Among the relocated populations, there has been a massive increase in stress-related illnesses, such as heart disease and obesity, unrelated to radiation. A major factor causing distress has been uncertainty about risks and in particular belief that all radiation doses can lead to cancer, as stated in the Linear No Threshold hypothesis presently used for the purpose of radiological protection. The recent report of UNPD and UNICEF [12] confirms the above statements and acknowledges that the people living in the contaminated areas receive low doses of radiation, being less than those occurring naturally in many other parts of the world. This is illustrated in Fig. 1 taken from [13] comparing lifetime doses to people around Chernobyl with the doses in European countries including Finland and Sweden, in which the population enjoys very good health and low cancer rates in spite of the high radiation background. According to Russian sources, medical monitoring of the clean-up staff has shown no increase of cancer rate and no relationship between the dose and the mortality. The overall mortality rate among the clean-up staff was statistically lower than the mortality rate of the control group from the public [14]. The UNSCEAR report also confirms that no radiation illnesses (with the exception of child thyroid diseases) have been found in the exposed population [11]. Thus, although it should be acknowledged that the effects of the Chernobyl accident are important, it should be also stressed that most of them are due to excessive fear motivated and politically expedient decisions, not to the radiation doses themselves. The NPPs planned to be built are completely different from RBMKs. The negative temperature reactivity coefficient ensures that, in accident conditions, their power will decrease, not increase as in Chernobyl, the containment (which did not exist in Chernobyl) would remain intact even after severe accidents and the accidentmanagement procedures and safety-upgrading measures implemented in the NPPs would prevent such large releases of radioactivity as was the case in Chernobyl. Thus, the radiological results of Chernobyl cannot be treated as representative of nuclear accidents in NPPs. The estimates of probable releases are made for each NPP separately within PSA studies and generally show that the hazards are much smaller than for other energy sources. 4. Comparison of nuclear-power risks with accident risks due to other energy sources The risks of electricity generation should be evaluated considering the whole cycle, from fuel mining to plant construction, to waste management and site recultivation. While in the case of the nuclear-fuel cycle, the accident risks are mostly connected with the power plant, in other fuel cycles the dominant contribution can be made by other fuel stages. For example, in the case of coal mining, the fatality ratio in the US is about 0.1 death/million tons or 3.5 death/GW(e).a [15]. In very large regions of the world, the situation can be much worse. In China, the average value for the country was about 4.6 deaths per MT in 1997 [16] and the number of mining fatalities per unit of energy produced from coal was 17 deaths/GW(e).a. In addition to that, the accident death rate in coal-fired power plants was about 2 deaths/GW(e).a [17] and in coal transport sector 8.5 deaths/GW(e).a [17]. These numbers add up to the accidental mortality in China coal power system being equal 27.5 deaths/GW(e).a. The number of fatalities due to severe accidents (involving more than 5 fatalities each) for the coal chain in OECD countries is 0.13 per GW(e) [19]. In non-OECD Fig countries, it is much higher. The everyday occupational hazards for the coal chain will be taken as 1.27 fatalities/GW(e).a according to [18], that is for European countries. It is seen, that the small accidents involve more fatalities than the large ones, so both numbers must be taken into account. The differences of the safety of hydropower in OECD and non-OECD countries are most pronounced. While the fatality ratio for OECD countries is only 0.004, it is 2.187 for non-OECD countries [15]. The data on dam safety show that differences in technology and safety practices influence very much the risk of power generation from a given facility. These differences are taken into account while discussing risks of the conventional power industry and nobody discussing the safety of a dam to be erected in the twenty-first century would base its safety indicators on accidents of dams built in say 1920. In a recent ExternE report on hydropower, the authors do not include any risk due to damfailures in the overall health risks due to hydropower [18], because they maintain that the dams built in Norway provide ‘‘negligibly small risk’’. Similarly, the progress in coal-mining safety is taken into account while estimating the number of fatalities per GW(e).a. Of course this is a correct approach. However, if we take into account the progress in dam construction before and after 1930, then the differences in NPP technology existing between RBMK reactors and LWR NPPs should be also considered. Similarly, if introducing strict regulations requiring qualified engineering supervision had a strong effect on dam safety, it is evident that the whole concept of safety culture implemented in Western NPPs has also a significant influence on nuclear-reactor safety. As the differences in design between modern PWRs and the Chernobyl RBMK are much more significant that any differences in dams erected in Norway versus those built in the USA, Italy, France etc., then following the logic accepted by EC ExternE study, the hazards due to Chernobyl should not be considered as the basis for evaluating the safety of future NPPs.

## Add-Ons

#### Natural gas price volatility crushes the chemical industry

ACC, American Chemistry Council, 05

(THE IMPACTS OF HIGH ENERGY COSTS TO THE AMERICAN CONSUMER, www.gpo.gov/fdsys/pkg/CHRG-109hhrg21446/html/CHRG-109hhrg21446.htm)

The unbalanced and volatile U.S. natural gas market has had a severe impact on the chemical industry. Today, U.S. natural gas prices are the highest in the world--over $7 per million BTUs, versus $5.25 in Europe, $4.50 in China and Japan and $1.25 or less in the Middle East and Russia. The chemical industry is the backbone of our nation's manufacturing sector. It is the largest industrial user of natural gas. The chemical industry uses natural gas for heat and power, but also as a raw material, a key ingredient, used to make thousands of products that consumers use every day.

#### The chemical industry is key to solve sustainability problems – prevents extinction

Baum, Editor-in-chief of the American Chemical Society's Chemical and Engineering News, 99

(C&E News, “Millennium Special Report,” http://pubs.acs.org/hotartcl/cenear/991206/7749spintro2.html)

The pace of change in today's world is truly incomprehensible. Science is advancing on all fronts, particularly chemistry and biology working together as they never have before to understand life in general and human beings in particular at a breathtaking pace. Technology ranging from computers and the Internet to medical devices to genetic engineering to nanotechnology is transforming our world and our existence in it. It is, in fact, a fool's mission to predict where science and technology will take us in the coming decade, let alone the coming century. We can say with finality only this: We don't know. We do know, however, that we face enormous challenges, we 6 billion humans who now inhabit Earth. In its 1998 revision of world population estimates and projections,the United Nations anticipates a world population in 2050 of 7.3 billion to 10.7 billion, with a "medium-fertility projection," considered the most likely, indicating a world population of 8.9 billion people in 2050. According to the UN, fertility now stands at 2.7 births per woman, down from 5 births per woman in the early 1950s. And fertility rates are declining in all regions of the world. That's good news. But people are living a lot longer. That is certainly good news for the individuals who are living longer, but it also poses challenges for health care and social services the world over. The 1998 UN report estimates for the first time the number of octogenarians, nonagenarians, and centenarians living today and projected for 2050. The numbers are startling. In 1998, 66 million people were aged 80 or older, about one of every 100 persons. That number is expected to increase sixfold by 2050 to reach 370 million people, or one in every 24 persons. By 2050, more than 2.2 million people will be 100 years old or older! Here is the fundamental challenge we face: The world's growing and aging population must be fed and clothed and housed and transported in ways that do not perpetuate the environmental devastation wrought by the first waves of industrialization of the 19th and 20th centuries. As we increase our output of goods and services, as we increase our consumption of energy, as we meet the imperative of raising the standard of living for the poorest among us, we must learn to carry out our economic activities sustainably. There are optimists out there, C&EN readers among them, who believe that the history of civilization is a long string of technological triumphs of humans over the limits of nature. In this view, the idea of a "carrying capacity" for Earth—a limit to the number of humans Earth's resources can support—is a fiction because technological advances will continuously obviate previously perceived limits. This view has historical merit. Dire predictions made in the 1960s about the exhaustion of resources ranging from petroleum to chromium to fresh water by the end of the 1980s or 1990s have proven utterly wrong. While I do not count myself as one of the technological pessimists who see technology as a mixed blessing at best and an unmitigated evil at worst, I do not count myself among the technological optimists either. There are environmental challenges of transcendent complexity that I fear may overcome us and our Earth before technological progress can come to our rescue. Global climate change, the accelerating destruction of terrestrial and oceanic habitats, the catastrophic loss of species across the plant and animal kingdoms—these are problems that are not obviously amenable to straightforward technological solutions. But I know this, too: Science and technology have brought us to where we are, and only science and technology, coupled with innovative social and economic thinking, can take us to where we need to be in the coming millennium. Chemists, chemistry, and the chemical industry—what we at C&EN call the chemical enterprise—will play central roles in addressing these challenges. The first section of this Special Report is a series called ["Millennial Musings"](https://mail.kinkaid.org/Redirect/pubs.acs.org/hotartcl/cenear/991206/7749muse1.html) in which a wide variety of representatives from the chemical enterprise share their thoughts about the future of our science and industry. The five essays that follow explore the contributions the chemical enterprise is making right now to ensure that we will successfully meet the challenges of the 21st century. The essays do not attempt to predict the future. Taken as a whole, they do not pretend to be a comprehensive examination of the efforts of our science and our industry to tackle the challenges I've outlined above. Rather, they paint, in broad brush strokes, a portrait of scientists, engineers, and business managers struggling to make a vital contribution to humanity's future. manipulation and corporate control over food. The first essay, by Senior Editor Marc S. Reisch, is a case study of the [chemical industry's ongoing transformation to sustainable production.](https://mail.kinkaid.org/Redirect/pubs.acs.org/hotartcl/cenear/991206/7749sustain.html) Although it is not well known to the general public, the chemical industry is at the forefront of corporate efforts to reduce waste from production streams to zero. Industry giants DuPont and Dow Chemical are taking major strides worldwide to manufacture chemicals while minimizing the environmental "footprint" of their facilities.  This is an ethic that starts at the top of corporate structure. Indeed, Reisch quotes Dow President and Chief Executive Officer William S. Stavropolous: "We must integrate elements that historically have been seen as at odds with one another: the triple bottom line of sustainability—economic and social and environmental needs." DuPont Chairman and CEO Charles (Chad) O. Holliday envisions a future in which "biological processes use renewable resources as feedstocks, use solar energy to drive growth, absorb carbon dioxide from the atmosphere, use low-temperature and low-pressure processes, and produce waste that is less toxic." But sustainability is more than just a philosophy at these two chemical companies. Reisch describes ongoing Dow and DuPont initiatives that are making sustainability a reality at Dow facilities in Michigan and Germany and at DuPont's massive plant site near Richmond, Va.  Another manifestation of the chemical industry's evolution is its embrace of life sciences. Genetic engineering is a revolutionary technology. In the 1970s, research advances fundamentally shifted our perception of DNA. While it had always been clear that deoxyribonucleic acid was a chemical, it was not a chemical that could be manipulated like other chemicals—clipped precisely, altered, stitched back together again into a functioning molecule. Recombinant DNA techniques began the transformation of DNA into just such a chemical, and the reverberations of that change are likely to be felt well into the next century. Genetic engineering has entered the fabric of modern science and technology. It is one of the basic tools chemists and biologists use to understand life at the molecular level. It provides new avenues to pharmaceuticals and new approaches to treat disease. It expands enormously agronomists' ability to introduce traits into crops, a capability seized on by numerous chemical companies. There is no doubt that this powerful new tool will play a major role in [feeding the world's population](https://mail.kinkaid.org/Redirect/pubs.acs.org/hotartcl/cenear/991206/7749food.html) in the coming century, but its adoption has hit some bumps in the road. In the second essay, Editor-at-Large Michael Heylin examines how the promise of agricultural biotechnology has gotten tangled up in real public fear of genetic manipulation and corporate control over food.