### NW T/Enviro

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

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

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

### AT: SMRs Slow

#### Takes 24 months to build

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]

SMRs could potentially mitigate such a risk in several ways. First, SMRs have lower precompletion risk due to shorter construction schedules (24-36 months as compared with 48 months). Second, because of their smaller size, SMRs have lower market risk because there is significantly less power than needs to be sold as compared with GW-level plants. Finally, the modular nature of SMRs affords the flexibility to build capacity on an as-needded basis. In the case of unsubsidized financing, particularly relevant to merchant markets, utility decision makers that have significant aversion to risk of future natural gas spikes (i.e., gas prices rising to about $7/Mcf or one standard deviation above the recent average behavior of natural gas prices) would possibly view alternatives to gas-fired generation as attractive options, particularly if the investment requirements are comparable – SMRs could potentially “fit the bill.”

#### Streamlining NRC regs speeds up the timeline

Hopf, Senior Nuclear Engineer, ’11

[Jim Hopf, Senior Nuclear Engineer, Member of the American Nuclear Society’s Public Information Committee, “[Roadblock in Congress for SMR Development,”](file:///C%3A/Users/Abhik/AppData/Roaming/Microsoft/Word/Roadblock%20in%20Congress%20for%20SMR%20Development%2C) October 25th 2011, http://ansnuclearcafe.org/2011/10/25/congress-smr/]

As many have observed, the main barrier to the deployment of SMRs may not be a lack of government financial or R&D support, but instead the enormous amount of time and money required to get new reactor designs licensed by the NRC. Reactor licensing processes have been taking many years and costing more than a $100 million dollars. Even approving an exact copy of an already-licensed reactor design (for a new site) is projected to take more than two years. Even SMRs that deploy conventional light-water technology (such as NuScale or mPower) can expect a long (~ 5 year) licensing process (starting in late 2012 or 2013). For non-conventional technologies like Hyperion, who knows how long it will take? The NRC has stated that non-conventional SMRs like Hyperion are not on its priority list right now, and that it will only consider such an application when a serious customer has been found (thus setting up a chicken-egg problem). Other issues that may hold back SMRs include security and emergency planning/evacuation requirements, and per-reactor NRC fees. If the NRC is not willing to consider the SMRs’ lower potential radioactivity release, as well as the lower probability of such release, in setting these requirements, as well as scaling fees with reactor capacity, it may destroy SMRs’ economic viability. Perhaps a more effective way for the government to support SMRs is for it to do something to reduce the licensing-related barriers discussed above, as opposed to outright financial support of SMR development. Possible options include making sure the NRC has sufficient resources to handle the entire volume of incoming license applications, somehow limiting the scope of review, or requiring the NRC to complete reviews within some fixed, reasonable time period.

## 1ar

### Atkisson

#### We’ve passed the threshold of sustainability – that’s AtKisson – we’ve put carbon into the air and made species extinct – withdrawal from tech can’t solve the damage that we’ve already done – action is key

### 2AC Environment

**Globalization solves environment—conscience shift, regulation, development, clean tech, and private property**

Norberg, Cato Institute Senior Fellow, 2003

[Johan, In Defense of Global Capitalism, p. 225-37]

Although multinational corporations and free trade are proving good for development and human rights in the Third World, there still remainsthe objection that **globalization harms the environmen**t. Factories in the Western world, the argument runs, will relocate to poorer countries with no environmental legislation, where they can pollute with impunity. The West has to follow suit and lower its own environmental standards in order to stay in business. That is a dismal thesis, with the implication that when people obtain better opportunities, resources, and technology, they use them to abuse nature. Does there really have to be a conflict between development and the environment? The notion that there has to be a conflict runs into the same problem as the whole idea of a race to the bottom: it **doesn't tally with reality. There is no exodus of industry** **to countries with poor environmental standards, and there is no downward pressure on** the level of global **environmental protection.** **Instead, the bulk of** American and European **investments goes to countries with environmental regulations** similar to their own. There has been much talk of American factories moving to Mexico since NAFTA was signed. Less well known, however, is that since free trade was introduced Mexico has tightened up its environmental regulations, following a long history of complete nonchalance about environmental issues. This tightening up is part of a global trend. All over the world, economic progress and **growth are moving hand in hand with** intensified **environmental protection.** Four researchers who studied these connections found “a very strong, positive association between our [environmental] indicators and the level of economic development**.” A country that is very poor is too preoccupied** with lifting itself out of poverty **to bother about the environment** at all. Countries usually begin protecting their natural resources when they can afford to do so. **When they grow richer, they start to regulate** effluent **emissions, and when they have still more resources they also begin regulating air qualit**y. 19 A number of factors cause environment protection to increase with wealth and development. Environmental quality is unlikely to be a top priority for people who barely know where their next meal is coming from. Abating misery and subduing the pangs of hunger takes precedence over conservation. When our standard of living rises we start attaching importance to the environment and obtaining resources to improve it. Such was the case earlier in western Europe, and so it is in the developing countries today. Progress of this kind, however, requires that people live in democracies where they are able and allowed to mobilize opinion; otherwise, their preferences will have no impact. Environmental destruction is worst in dictatorships. But it is the fact of prosperity no less than a sense of responsibility that makes environmental protection easier in a wealthy society. **A wealthier country can afford to tackle environmental problems; it can develop** environmentally friendly **technologies**—wastewater and exhaust emission control, for example—and begin to rectify past mistakes. Global environmental development resembles not so much a race for the bottom as a race to the top, what we might call a “California effect.” The state of California's Clean Air Acts, first introduced in the 1970s and tightened since, were stringent emissions regulations that made rigorous demands on car manufacturers. Many prophets of doom predicted that firms and factories would move to other states, and California would soon be obliged to repeal its regulations. But instead the opposite happened: other states gradually tightened up their environmental stipulations. Because **car companies needed the** wealthy **California market, manufacturers** all over the United States **were forced to** **develop** new **techniques for reducing emissions**. Having done so, they could more easily comply with the exacting requirements of other states, whereupon those states again ratcheted up their requirements. **Anti-globalists** usually **claim that the profit motive and free trade** together **cause businesses to entrap politicians in a race for the bottom**. **The California effect implies the opposite: free trade enables politicians to pull profit-hungry corporations along with them** in a race to the top. This phenomenon occurs because compliance with environmental rules accounts for a very small proportion of most companies' expenditures. What firms are primarily after is a good business environment—a liberal economy and a skilled workforce— not a bad natural environment. A review of research in this field shows that there are no clear indications of national environmental rules leading to a diminution of exports or to fewer companies locating in the countries that pass the rules. 20 This finding undermines both the arguments put forward by companies against environmental regulations and those advanced by environmentalists maintaining that globalization has to be restrained for environmental reasons. Incipient signs of the California effect's race to the top are present all over the world, because globalization has caused different countries to absorb new techniques more rapidly, and the new techniques are generally far gentler on the environment.**Researchers have investigated steel manufacturing in 50 different countries and concluded that countries with more open economies took the lead in introducing cleaner technology**. Production in those countries generated almost 20 percent less emissions than the same production in closed countries. This process is being driven by multinational corporations because they have a lot to gain from uniform production with uniform technology. Because they are restructured more rapidly, they have more modern machinery. And they prefer assimilating the latest, most environmentally friendly technology immediately to retrofitting it, at great expense, when environmental regulations are tightened up. Brazil, Mexico, and China—**the three biggest recipients of foreign investment**—**have followed a very clear pattern: the more investments they get, the better control they gain over air pollution**. The worst forms of air pollution have diminished in their cities during the period of globalization. When Western companies start up in developing countries, their production is considerably more environment-friendly than the native production, and they are more willing to comply with environmental legislation, not least because they have brand images and reputations to protect. Only 30 percent of Indonesian companies comply with the country's environmental regulations, whereas no fewer than 80 percent of the multinationals do so. One out of every 10 foreign companies maintained a standard clearly superior to that of the regulations. This development would go faster if economies were more open and, in particular, if the governments of the world were to phase out the incomprehensible tariffs on environmentally friendly technology. 21 Sometimes one hears it said that, for environmental reasons, the poor countries of the South must not be allowed to grow as affluent as our countries in the North. For example, in a compilation of essays on Environmentally Significant Consumption published by the National Academy of Sciences, we find anthropologist Richard Wilk fretting that: If everyone develops a desire for the Western high-consumption lifestyle, the relentless growth in consumption, energy use, waste, and emissions may be disastrous. 22 But studies show this to be colossal misapprehension. On the contrary, **it is in the developing countries that we find the gravest, most harmful** **environmental problems**. In our affluent part of the world, more and more people are mindful of environmental problems such as endangered green areas. Every day in the developing countries, more than 6,000 people die from air pollution when using wood, dung, and agricultural waste in their homes as heating and cooking fuel. UNDP estimates that no fewer than 2.2 million people die every year from polluted indoor air. **This result is already “disastrous” and far more destructive than atmospheric pollution and industrial emissions. Tying people down to that level of development means condemning millions to premature death every year.** It is not true that pollution in the modern sense increases with growth. Instead, pollution follows an inverted U-curve. When growth in a very poor country gathers speed and the chimneys begin belching smoke, the environment suffers. But when prosperity has risen high enough, the environmental indicators show an improvement instead: emissions are reduced, and air and water show progressively lower concentrations of pollutants. The cities with the worst problems are not Stockholm, New York, and Zürich, but rather Beijing, Mexico City, and New Delhi. In addition to the factors already mentioned, this is also due to the economic structure changing from raw-material-intensive to knowledge-intensive production. In a modern economy, heavy, dirty industry is to a great extent superseded by service enterprises. Banks, consulting firms, and information technology corporations do not have the same environmental impact as old factories. According to one survey of available environmental data, the turning point generally comes before a country's per capita GDP has reached $8,000. At $10,000, the researchers found a positive connection between increased growth and better air and water quality. 23 That is roughly the level of prosperity of Argentina, South Korea, or Slovenia. In the United States, per capita GDP is about $36,300. Here as well, the environment has consistently improved since the 1970s, quite contrary to the picture one gets from the media. In the 1970s there was constant reference to smog in American cities, and rightly so: the air was judged to be unhealthy for 100–300 days a year. Today it is unhealthy for fewer than 10 days a year, with the exception of Los Angeles. There, the figure is roughly 80 days, but even that represents a 50 percent reduction in 10 years. 24 The same trend is noticeable in the rest of the affluent world—for example, in Tokyo, where, a few decades ago, doomsayers believed that oxygen masks would in the future have to be worn all around the city because of the bad air. Apart from its other positive effects on the developing countries, such as ameliorating hunger and sparing people the horror of watching their children die, **prosperity beyond a** certain **critical point can improve the environment**. What is more, this turning point is now occurring progressively earlier in the developing countries, because they can learn from more affluent countries' mistakes and use their superior technology. For example, air quality in the enormous cities of China, which are the most heavily polluted in the world, has steadied since the mid-1980s and in several cases has slowly improved. This improvement has coincided with uniquely rapid growth. Some years ago, the Danish statistician and Greenpeace member Bjørn Lomborg, with about 10 of his students, compiled statistics and facts about the world's environmental problems. To his astonishment, he found that what he himself had regarded as self-evident, **the steady deterioration of the global environment, did not agree at all with official empirical data.** He found instead that **air pollution is diminishing, refuse problems are diminishing, resources are not running out**, **more people are eating their fill,** and people are living longer. Lomborg gathered publicly available data from as many fields as he could find and published them in the book The Skeptical Environmentalist: Measuring the Real State of the World. The picture that emerges there is an important corrective to the general prophesies of doom that can so easily be imbibed from newspaper headlines. Lomborg shows that air pollution and emissions have been declining in the developed world during recent decades. Heavy metal emissions have been heavily reduced; nitrogen oxides have diminished by almost 30 percent and sulfur emissions by about 80 percent. Pollution and emission problems are still growing in the poor developing countries, but at every level of growth annual particle density has diminished by 2 percent in only 14 years. In the developed world, phosphorus emissions into the seas have declined drastically, and E. coli bacteria concentrations in coastal waters have plummeted, enabling closed swimming areas to reopen. Lomborg shows that, **instead of large-scale deforestation, the world's forest acreage** increased from 40.24 million to 43.04 million square kilometers between 1950 and 1994. He finds that there has never been any large-scale tree death caused by acid rain. The oft-quoted, but erroneous statement about 40,000 species going extinct every year is traced by Lomborg to its source—a 20-year-old estimate that has been circulating in environmentalist circles ever since. Lomborg thinks it is closer to 1,500 species a year, and possibly a bit more than that. The documented cases of extinction during the past 400 years total just over a thousand species, of which about 95 percent are insects, bacteria, and viruses. As for the problem of garbage, the next hundred years worth of Danish refuse could be accommodated in a 33-meter-deep pit with an area of three square kilometers, even without recycling. In addition, Lomborg illustrates how increased prosperity and improved technology can solve the problems that lie ahead of us. All the fresh water consumed in the world today could be produced y a single desalination plant, powered by solar cells and occupying 0.4 percent of the Sahara Desert. It is a mistake, then, to believe that growth automatically ruins the environment. And claims that we would need this or that number of planets for the whole world to attain a Western standard of consumption—those “ecological footprint” calculations—are equally untruthful. Such a claim is usually made by environmentalists, and it is concerned, not so much with emissions and pollution, as with resources running out if everyone were to live as we do in the affluent world. Clearly, certain of the raw materials we use today, in presentday quantities, would not suffice for the whole world if everyone consumed the same things. But that information is just about as interesting as if a prosperous Stone Age man were to say that, if everyone attained his level of consumption, there would not be enough stone, salt, and furs to go around. Raw material consumption is not static. With more and more people achieving a high level of prosperity, we start looking for ways of using other raw materials. Humanity is constantly improving technology so as to get at raw materials that were previously inaccessible, and we are attaining a level of prosperity that makes this possible. **New innovations make it possible for old raw materials to be put to better use and for garbage to be turned into new raw materia**ls. A century and a half ago, oil was just something black and sticky that people preferred not to step in and definitely did not want to find beneath their land. But our interest in finding better energy sources led to methods being devised for using oil, and today it is one of our prime resources. Sand has never been all that exciting or precious, but today it is a vital raw material in the most powerful technology of our age, the computer. In the form of silicon—which makes up a quarter of the earth's crust— it is a key component in computer chips. There is a simple market mechanism that averts shortages. If a certain raw material comes to be in short supply, its price goes up. This makes everyone more interested in economizing on that resource, in finding more of it, in reusing it, and in trying to find substitutes for it. The trend over the last few decades of falling raw material prices is clear. Metals have never been as cheap as they are today. Prices are falling, which suggests that demand does not exceed supply. In relation to wages, that is, in terms of how long we must work to earn the price of a raw material, natural resources today are half as expensive as they were 50 years ago and one-fifth as expensive as they were a hundred years ago. In 1900 the price of electricity was eight times higher, the price of coal seven times higher, and the price of oil five times higher than today. 25 The risk of shortage is declining all the time, because new finds and more efficient use keep augmenting the available reserves. In a world where technology never stops developing, static calculations are uninteresting, and wrong. By simple mathematics, Lomborg establishes that if we have a raw material with a hundred years' use remaining, a 1 percent annual increase in demand, and a 2 percent increase in recycling and/or efficiency, that resource will never be exhausted. If shortages do occur, then with the right technology most substances can be recycled. One-third of the world's steel production, for example, is being reused already. **Technological advance can outstrip the depletion of resources**

. Not many years ago, everyone was convinced of the impossibility of the whole Chinese population having telephones, because that would require several hundred million telephone operators. But the supply of manpower did not run out; technology developed instead. Then it was declared that nationwide telephony for China was physically impossible because all the world's copper wouldn't suffice for installing heavy gauge telephone lines all over the country. Before that had time to become a problem, fiber optics and satellites began to supersede copper wire. The price of copper, a commodity that people believed would run out, has fallen continuously and is now only about a tenth of what it was 200 years ago. People in most ages have worried about important raw materials becoming exhausted. But on the few occasions when this has happened, it has generally affected isolated, poor places, not open, affluent ones. To claim that people in Africa, who are dying by the thousand every day from supremely real shortages, must not be allowed to become as prosperous as we in the West because we can find theoretical risks of shortages occurring is both stupid and unjust. The environmental question will not resolve itself. Proper rules are needed for the protection of water, soil, and air from destruction. Systems of emissions fees are needed to give polluters an interest in not damaging the environment for others. Many environmental issues also require international regulations and agreements, which confront us with entirely new challenges. Carbon dioxide emissions, for example, tend to increase rather than diminish when a country grows more affluent. When talking about the market and the environment, it is important to realize that efforts in this quarter will be facilitated by a freer, growing economy capable of using the best solutions, from both a natural and a human viewpoint. In order to meet those challenges, it is better to have resources and advanced science than not to have them. Very often, environmental improvements are due to the very capitalism so often blamed for the problems. The introduction of **private property creates owners with long-term interests. Landowners must see to it that there is good soil** or forest **there** **tomorrow as well**, because otherwise they will have no income later on, whether they continue using the land or intend to sell it. If the property is collective or government-owned, no one has any such long-term interest. On the contrary, everyone then has an interest in using up the resources quickly before someone else does. It was because they were common lands that the rain forests of the Amazon began to be rapidly exploited in the 1960s and 1970s and are still being rapidly exploited today. Only about a 10th of forests are recognized by the governments as privately owned, even though in practice Indians possess and inhabit large parts of them. **It is the absence of definite fishing rights that causes** **(heavily subsidized)** **fishing fleets to try to vacuum the oceans of fish** **before someone else does**. No wonder, then, that the most large-scale destruction of environment in history has occurred in the communist dictatorships, where all ownership was collective. A few years ago, a satellite image was taken of the borders of the Sahara, where the desert was spreading. Everywhere, the land was parched yellow, after nomads had overexploited the common lands and then moved on. But in the midst of this desert environment could be seen a small patch of green. This proved to be an area of privately owned land where the owners of the farm prevented overexploitation and engaged in cattle farming that was profitable in the long term. 26 Trade and freight are sometimes criticized for destroying the environment, but the problem can be rectified with more efficient transport and purification techniques, as well as emissions fees to make the cost of pollution visible through pricing. The biggest environmental problems are associated with production and consumption, and there trade can make a positive contribution, even aside from the general effect it has on growth. **Trade leads to a country's resources being used as efficiently as possible. Goods are produced in the places where production entails least expense and least wear and tear on the environment.** That is why the amount of raw materials needed to make a given product keeps diminishing as productive efficiency improves. With modern production processes, 97 percent less metal is needed for a soft drink can than 30 years ago, partly because of the use of lighter aluminum. A car today contains only half as much metal as a car of 30 years ago. Therefore, it is better for production to take place where the technology exists, instead of each country trying to have production of its own, with all the consumption of resources that would entail. It is more environmentally friendly for a cold northern country to import meat from temperate countries than to waste resources on concentrated feed and the construction and heating of cattle pens for the purpose of native meat production.

#### Econ decline leads to environmental collapse

Richard 8

Michael Graham, staff writer, Tree Hugger, http://www.treehugger.com/files/2008/02/4\_reasons\_recession\_bad\_environment.php

As a counter-point to Lloyd's tongue-in-cheek post about [10 Ways the Recession Can Help the Environment](http://www.treehugger.com/files/2008/02/always_look_on.php), here are some eco-reasons why we should wish a speedy recovery (we won't get into non-green reasons here): Firstly, when squeezed, companies will reduce their investments into research & development and green programs. These are usually not short-term profit centers, so that is what's axed first. Some progress has been made in the past few years, it would be sad to lose ground now. Secondly, average people, when money is tight, will look for less expensive products (duh). Right now, that usually means that greener products won't make it. Maybe someday if we start taxing "bads" instead of "goods" (pollution, carbon, toxins instead of labor, income, capital gains) the least expensive products will also be the greenest, but right now that's not the case. Thirdly, there's less money going into the stock markets and bank loans are harder to get, which means that many small firms and startups working on the breakthrough green technologies of tomorrow can have trouble getting funds or can even go bankrupt, especially if their clients or backers decide to make cuts. Fourthly, during economic crises, voters want the government to appear to be doing something about the economy (even if it's government that screwed things up in the first place). They'll accept all kinds of measures and laws, including those that aren't good for the environment. Massive corn subsidies anyone? Don't even think about progress on global warming...

### 1AR Warming

#### Their evidence is theoretical – our evidence cites studies

#### Growth key to solve warming – necessary for support for new treaties

Haass 8

Richard. President of the Council on Foreign Relations. 11/8/8. <http://online.wsj.com/article/SB122611110847810599.html>.

There will be other policy consequences of recession. It will be more difficult to negotiate an accord on climate change as countries such as China and India will resist anything that could be an impediment to growth. High unemployment will make it even tougher to build a majority here at home for immigration reform. We will likely see new outbreaks of resistance to the ability of foreigners to buy U.S. assets despite a clear need for their dollars.

### AT: No Extinction

#### Even small nuclear exchanges cause extinction

Carl Sagan, B.A., B.S., and PhD University of Chicago, former professor of biology and genetics at Stanford and professor of astronomy and astrophysics at Harvard, former Director of the Laboratory for Planetary Studies at Cornell, two-time winner of the NASA medal for scientific achievement, Peabody award recipient, and Pulitzer prize winning author 1983 http://www.cooperativeindividualism.org/sagan\_nuclear\_winter.html

But what if nuclear wars can be contained, and much less than 5000 megatons is detonated? Perhaps the greatest surprise in our work was that even small nuclear wars can have devastating climatic effects. We considered a war in which a mere 100 megatons were exploded, less than one percent of the world arsenals, and only in low-yield airbursts over cities. This scenario, we found, would ignite thousands of fires, and the smoke from these fires alone would be enough to generate an epoch of cold and dark almost as severe as in the 5000 megaton case. The threshold for what Richard Turco has called The Nuclear Winter is very low. Could we have overlooked some important effect? The carrying of dust and soot from the Northern to the Southern Hemisphere (as well as more local atmospheric circulation) will certainly thin the clouds out over the Northern Hemisphere. But, in many cases, this thinning would be insufficient to render the climatic consequences tolerable -- and every time it got better in the Northern Hemisphere, it would get worse in the Southern. Our results have been carefully scrutinized by more than 100 scientists in the United States, Europe and the Soviet Union. There are still arguments on points of detail. But the overall conclusion seems to be agreed upon: There are severe and previously unanticipated global consequences of nuclear war-subfreezing temperatures in a twilit radioactive gloom lasting for months or longer. Scientists initially underestimated the effects of fallout, were amazed that nuclear explosions in space disabled distant satellites, had no idea that the fireballs from high-yield thermonuclear explosions could deplete the ozone layer and missed altogether the possible climatic effects of nuclear dust and smoke. What else have we overlooked? Nuclear war is a problem that can be treated only theoretically. It is not amenable to experimentation. Conceivably, we have left something important out of our analysis, and the effects are more modest than we calculate. On the other hand, it is also possible-and, from previous experience, even likely-that there are further adverse effects that no one has yet been wise enough to recognize. With billions of lives at stake, where does conservatism lie-in assuming that the results will be better than we calculate, or worse? Many biologists, considering the nuclear winter that these calculations describe, believe they carry somber implications for life on Earth. Many species of plants and animals would become extinct. Vast numbers of surviving humans would starve to death. The delicate ecological relations that bind together organisms on Earth in a fabric of mutual dependency would be torn, perhaps irreparably. There is little question that our global civilization would be destroyed. The human population would be reduced to prehistoric levels, or less. Life for any survivors would be extremely hard. And there seems to be a real possibility of the extinction of the human species.

### Sustainability

#### The aff makes growth sustainable – SMRs provide carbon-free energy on a large scale – resolves the warrants in their evidence

#### Growth is sustainable -- resource scarcity can be corrected by technology.

Haynes 2008 (Beth Haynes, Professor of Economics at Brigham Young University-Hawaii, “Finite Resources vs. Infinite Resourcefulness”, 8/19/08 <http://wealthisnottheproblem.blogspot.com/2008/08/finite-resources-vs-infinite.html>)

Our consumption is excessive. If we continue to consume our natural resources, there will be nothing left for the future. Use less. Do it for the children! Limit. Limit. Limit. Do it for the poor! A significant number of environmental concerns center on this fear of using up some important resource: oil, rainforest, fresh water, open space, biodiversity. The concern is genuine. The fears are real. People then work to pass laws which intentionally slow production and hinder (even prevent) consumption. The express purpose is to make us poorer in the short run with the hope of preventing poverty in the long run. It’s common sense. Save today in order to have some available tomorrow. It’s how our bank accounts work, so it seems logical to apply the same reasoning to resource use. But there is a catch. All of economic history, up to and including today, demonstrates that the more we exploit our natural resources, the more available they become. (3-7) How can this possibly be? If we use our “limited, non-renewable resources” we have to end up with less, right? Actually, no. And here is why. We don’t simply “use up” existing resources; we constantly create them. We continually invent new processes, discover new sources, improve the efficiency of both use and extraction, while at the same time we discover cheaper, better alternatives. The fact that a particular physical substance is finite is irrelevant. What is relevant is the process of finding ways to meet human needs and desires. The solutions, and thus what we consider resources, are constantly changing. Oil was a nuisance, not a resource, until humans discovered a use for it. In order to survive and flourish, human beings must succeed at fulfilling certain needs and desires. This can be accomplished in a multitude of ways using a multitude of materials. The requirements of life set the goals. How these goals are met does not depend on the existence or the availability of any particular material. Limits are placed not by the finiteness of a physical substance, but by the extent of our knowledge, of our wealth, and of our freedom. Knowledge. Wealth. Freedom. These are the factors which are essential to solving the problems we face. “The Stone Age didn’t end because we ran out of stones.” (8) Think for a minute about how we have solved the problem of meeting basic needs throughout history: Transportation: from walking to landing on the moon Communication: from face-to-face conversations to the World Wide Web. Food: from hunting and gathering to intravenous feeding and hydroponics. Shelter: from finding a cave to building skyscrapers Health care: from shamans to MRIs and neurosurgery. How does progress happen? A synopsis of the process is provided by the main theme of Julian Simon’s book, The Ultimate Resource 2: More people, and increased income, cause resources to become more scarce in the short run. Heightened scarcity causes prices to rise. The higher prices present opportunity and prompt inventors and entrepreneurs to search for solutions. Many fail in the search, at cost to themselves. But in a free society, solutions are eventually found. And in the long run, the new developments leave us better off than if the problems had not arisen, that is, prices eventually become lower than before the scarcity occurred. (9) This idea is not just theory. Economists and statisticians have long been analyzing the massive amounts of data collected on resource availability. The conclusion: our ability to solve the problems of human existence is ever-expanding. Resources have become less scarce and the world is a better place to live for more and more people. (3-7) Overall, we create more than we destroy as evidenced by the steady progress in human well being and there is no evidence for concluding that this trend can't and won't continue. Doomsday predictions have been with us since ancient times and they have consistently been proven wrong.

### No Transition

#### No transition because of energy sources – that’s McNelis – mindset shifts are insufficient to meet demand in electricity, practical action is key

#### **Economic decline triggers food insecurity, worse environmental destruction and transition will fail. Growth empirically drives environmental and social improvements.**

Mead, 12 --- Professor of Foreign Affairs and Humanities at Bard College (7/28/2012, Walter Russell, “The Energy Revolution 4: Hot Planet?” <http://blogs.the-american-interest.com/wrm/2012/07/28/the-energy-revolution-4-hot-planet/>, JMP)

Capitalism is not, Monbiot is forced to admit, a fragile system that will easily be replaced. Bolstered by huge supplies of oil, it is here to stay. Industrial civilization is, as far as he can now see, unstoppable. Gaia, that treacherous slut, has made so much oil and gas that her faithful acolytes today cannot protect her from the consequences of her own folly.

Welcome to the New Green Doom: an overabundance of oil and gas is going to release so much greenhouse gas that the world is going to fry. The exploitation of the oil sands in Alberta, warn leading environmentalists, is a tipping point. William McKibben put it this way in an interview with Wired magazine in the fall of 2011:

 I think if we go whole-hog in the tar sands, we’re out of luck. Especially since that would doubtless mean we’re going whole-hog at all the other unconventional energy sources we can think of: Deepwater drilling, fracking every rock on the face of the Earth, and so forth.

 Here’s why the tar sands are important: It’s a decision point about whether, now that we’re running out of the easy stuff, we’re going to go after the hard stuff. The Saudi Arabian liquor store is running out of bottles. Do we sober up, or do we find another liquor store, full of really crappy booze, to break into?

A year later, despite the success of environmentalists like McKibben at persuading the Obama administration to block a pipeline intended to ship this oil to refineries in the US, it’s clear (as it was crystal clear all along to anyone with eyes to see) that the world has every intention of making use of the “crappy liquor.”

Again, for people who base their claim to world leadership on their superior understanding of the dynamics of complex systems, greens prove over and over again that they are surprisingly naive and crude in their ability to model and to shape the behavior of the political and economic systems they seek to control. If their understanding of the future of the earth’s climate is anything like as wish-driven, fact-averse and intellectually crude as their approach to international affairs, democratic politics and the energy market, the greens are in trouble indeed. And as I’ve written in the past, the contrast between green claims to understand climate and to be able to manage the largest and most complex set of policy changes ever undertaken, and the evident incompetence of greens at managing small (Solyndra) and large (Kyoto, EU cap and trade, global climate treaty) political projects today has more to do with climate skepticism than greens have yet understood. Many people aren’t rejecting science; they are rejecting green claims of policy competence. In doing so, they are entirely justified by the record.

Nevertheless, the future of the environment is not nearly as dim as greens think. Despairing environmentalists like McKibben and Monbiot are as wrong about what the new era of abundance means as green energy analysts were about how much oil the planet had.

The problem is the original sin of much environmental thought: Malthusianism. If greens weren’t so addicted to Malthusian horror narratives they would be able to see that the new era of abundance is going to make this a cleaner planet faster than if the new gas and oil had never been found.

Let’s be honest. It has long been clear to students of history, and has more recently begun to dawn on many environmentalists, that all that happy-clappy carbon treaty stuff was a pipe dream and that nothing like that is going to happen. A humanity that hasn’t been able to ban the bomb despite the clear and present dangers that nuclear weapons pose isn’t going to ban or even seriously restrict the internal combustion engine and the generator.

The political efforts of the green movement to limit greenhouse gasses have had very little effect so far, and it is highly unlikely that they will have more success in the future. The green movement has been more of a group hug than a curve bending exercise, and that is unlikely to change. If the climate curve bends, it will bend the way the population curve did: as the result of lots of small human decisions driven by short term interest calculations rather than as the result of a grand global plan.

The shale boom hasn’t turned green success into green failure. It’s prevented green failure from turning into something much worse. Monbiot understands this better than McKibben; there was never any real doubt that we’d keep going to the liquor store. If we hadn’t found ways to use all this oil and gas, we wouldn’t have embraced the economics of less. True, as oil and gas prices rose, there would be more room for wind and solar power, but the real winner of an oil and gas shortage is… coal. To use McKibben’s metaphor, there is a much dirtier liquor store just down the road from the shale emporium, and it’s one we’ve been patronizing for centuries. The US and China have oodles of coal, and rather than walk to work from our cold and dark houses all winter, we’d use it. Furthermore, when and if the oil runs out, the technology exists to get liquid fuel out of coal. It isn’t cheap and it isn’t clean, but it works.

The newly bright oil and gas future means that we aren’t entering a new Age of Coal. For this, every green on the planet should give thanks.

The second reason why greens should give thanks for shale is that environmentalism is a luxury good. People must survive and they will survive by any means necessary. But they would much rather thrive than merely survive, and if they can arrange matters better, they will. A poor society near the edge of survival will dump the industrial waste in the river without a second thought. It will burn coal and choke in the resulting smog if it has nothing else to burn.

Politics in an age of survival is ugly and practical. It has to be. The best leader is the one who can cut out all the fluff and the folderol and keep you alive through the winter. During the Battle of Leningrad, people burned priceless antiques to stay alive for just one more night.

An age of energy shortages and high prices translates into an age of radical food and economic insecurity for billions of people. Those billions of hungry, frightened, angry people won’t fold their hands and meditate on the ineffable wonders of Gaia and her mystic web of life as they pass peacefully away. Nor will they vote George Monbiot and Bill McKibben into power. They will butcher every panda in the zoo before they see their children starve, they will torch every forest on earth before they freeze to death, and the cheaper and the meaner their lives are, the less energy or thought they will spare to the perishing world around them.

But, thanks to shale and other unconventional energy sources, that isn’t where we are headed. We are heading into a world in which energy is abundant and horizons are open even as humanity’s grasp of science and technology grows more secure. A world where more and more basic human needs are met is a world that has time to think about other goals and the money to spend on them. As China gets richer, the Chinese want cleaner air, cleaner water, purer food — and they are ready and able to pay for them. A Brazil whose economic future is secure can afford to treasure and conserve its rain forests. A Central America where the people are doing all right is more willing and able to preserve its biodiversity. And a world in which people know where their next meal is coming from is a world that can and will take thought for things like the sustainability of the fisheries and the protection of the coral reefs.

A world that is more relaxed about the security of its energy sources is going to be able to do more about improving the quality of those sources and about managing the impact of its energy consumption on the global commons. A rich, energy secure world is going to spend more money developing solar power and wind power and other sustainable sources than a poor, hardscrabble one.

When human beings think their basic problems are solved, they start looking for more elegant solutions. Once Americans had an industrial and modern economy, we started wanting to clean up the rivers and the air. Once people aren’t worried about getting enough calories every day to survive, they start wanting healthier food more elegantly prepared.

A world of abundant shale oil and gas is a world that will start imposing more environmental regulations on shale and gas producers. A prosperous world will set money aside for research and development for new technologies that conserve energy or find it in cleaner surroundings. A prosperous world facing climate change will be able to ameliorate the consequences and take thought for the future in ways that a world overwhelmed by energy insecurity and gripped in a permanent economic crisis of scarcity simply can’t and won’t do.

Greens should also be glad that the new energy is where it is. For Monbiot and for many others, Gaia’s decision to put so much oil into the United States and Canada seems like her biggest indiscretion of all. Certainly, a United States of America that has, in the Biblical phrase, renewed its youth like an eagle with a large infusion of fresh petro-wealth is going to be even less eager than formerly to sign onto various pie-in-the-sky green carbon treaties.

But think how much worse things would be if the new reserves lay in dictatorial kleptocracies. How willing and able would various Central Asia states have been to regulate extraction and limit the damage? How would Nigeria have handled vast new reserves whose extraction required substantially more invasive methods?

Instead, the new sources are concentrated in places where environmentalists have more say in policy making and where, for all the shortcomings and limits, governments are less corruptible, more publicly accountable and in fact more competent to develop and enforce effective energy regulations. This won’t satisfy McKibben and Monbiot (nothing that could actually happen would satisfy either of these gentlemen), but it is a lot better than what we could be facing.

Additionally, if there are two countries in the world that should worry carbon-focused greens more than any other, they are the United States and China. The two largest, hungriest economies in the world are also home to enormous coal reserves. But based on what we now know, the US and China are among the biggest beneficiaries of the new cornucopia. Gaia put the oil and the gas where, from a carbon point of view, it will do the most good. In a world of energy shortages and insecurity, both the US and China would have gone flat out for coal. Now, that is much less likely.

And there’s one more reason why greens should thank Gaia for shale. Wind and solar aren’t ready for prime time now, but by the time the new sources start to run low, humanity will have mastered many more technologies that can used to provide energy and to conserve it. It’s likely that Age of Shale hasn’t just postponed the return of coal: because of this extra time, there likely will never be another age in which coal is the dominant industrial fuel. It’s virtually certain that the total lifetime carbon footprint of the human race is going to be smaller with the new oil and gas sources than it would have been without them.

Neither the world’s energy problems nor its climate issues are going away any time soon. Paradise is not beckoning just a few easy steps away. But the new availability of these energy sources is on balance a positive thing for environmentalists as much as for anyone else.

Perhaps, and I know this is a heretical thought, but perhaps Gaia is smarter than the greens.

#### Transition wars is conceded – Barnhizer – social needs are so great that even if we could go to self-sufficiency there would be continual conflict and resource wars – we’re too entrenched in a consumerist mindset

#### The other Barnhizer card says that globalization is too entrenched – too many interconnections means that people will fight to regain them when they’re lost