Economy

#### No decoupling – especially true with recession stalling

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(Kate Mackenzie - Asia correspondent, FT Alphaville at Financial Times” (“When the US sneezes at the edge of a fiscal cliff, the rest of the world should worry”. Cites report by Nathan Sheets - Global Head of International Economics within Citi’s Investment Research & Analysis division and Robert Sockin - financial professional at Citigroup Global Markets Inc. http://ftalphaville.ft.com/blog/2012/09/13/1153791/when-the-us-sneezes-at-the-edge-of-a-fiscal-cliff-the-rest-of-the-world-should-worry/)

Remember ‘stall speeds’? It’s the idea that when economic growth falls below a particular threshold, it becomes a prelude to likely recession or at the least, makes the economy far more vulnerable to recession.

It’s been kicked around a lot in the past year or so, particularly in regard to the US economy. While it’s not universally agreed upon, it was apparently influential within the Fed ahead of the QE2 launch last year and a popular paper by Fed researcher Jeremy Nalewaik published in April 2011 says there is empirical evidence of such an effect.

Citi’s Nathan Sheets and Robert Sockin have attempted to apply the concept not just the US, but to the rest of the world. They reckon 1.5 per cent growth is about the US’ stall speed threshold: “Upon crossing this threshold, growth tends to fall by nearly 3 percentage points over the following four quarters.”

The bar chart below is a little complicated to explain fully without going into Sheets and Sockin’s methodology, but you can think of it as the average decline in GDP growth during the four quarters immediately after growth moves below the level indicated on each bar.

If you’re wondering why the economy is less vulnerable at 1 per cent or 0.5 per cent growth than it is at 1.5 per cent, Sheets and Sockin postulate this could be due to the economy’s “natural equilibrium mechanisms” beginning to manifest as bottoming-out becomes more likely.

From here they try to determine whether other countries have similar stall speeds to the US, and also measure the effect of that the US hitting stall speed has on the global economy.

The UK had the most striking evidence of a stall speed and it was lower than the US, at 1 per cent (click to expand):

The euro area’s stall rate, however, seems to be more similar to the US at 1.5 per cent. Japan is in the same camp as the US at 1 per cent and Mexico’s is in the range of 1.5 to 2 per cent. (You can read the full note in the usual place for all those charts.)

Advanced economies, in aggregate, show strong evidence of having a stall speed and a level of about 2 per cent when examined as a group. Emerging economies, again in aggregate, show weaker evidence of the stall speed effect, but their growth rates are typically well above their apparent stall speed of about 4 per cent.

And the world as a whole?

It’s worse than the current rate of global growth would suggest:

Taken at face value, these results would suggest that global growth—which is currently hovering at 2.5 percent—has already hit its 3.5 percent stall speed, contracted a little more than ¾ percentage point, and likely has now bottomed out. However, in past episodes when global growth has subsequently cut below 2 percent, it has either fallen significantly further (as in the early 1980s and through the global financial crisis) or growth has stagnated for a several-year period (as in the early 1990s and the first part of the 2000s). Consistent with these observations, our work finds that 2 percent indeed represents a secondary stall speed for global growth, with the estimated effect scoring significance at the 10 percent level. As such, the global economy seems to be in quite vulnerable territory at present.

The second part of Sheets and Sockin’s paper unpicks the effect of US stall speeds on the rest of the world using Granger causality tests.

Not surprisingly, they found some evidence of a strong linkage:

Specifically, we find that a given decline in U.S. growth reduces the pace of expansion in other countries on average by roughly 20 to 30 percent of the U.S. decline. We also find, however, that when the U.S. economy hits its stall speed, U.S. growth has subsequently fallen by nearly 3 percentage points, and growth in the rest of the world has declined half as much. Growth abroad has thus shown particular sensitivity to spillovers from the United States after the U.S. economy has hit its stall speed.

While they say that it’s beyond the scope of their work to examine how exactly the US influences global growth, they have a theory:

Our working hypothesis is that the unique global role of the U.S. economy flows mainly from the financial features of the economy, particularly the large size of U.S. asset markets and the exposure of foreign institution

s and investors to those markets. A sharp slowing in the trajectory of U.S. growth tends to create strains on U.S. financial markets, which in turn spill over to financial markets and institutions in other countries. The upshot is an increase in global uncertainty and declines in confidence that quickly pass through into economic activity abroad. By the same token, we are doubtful that the powerful spillovers from the United States that we have documented are driven largely by trade linkages; the role of the United States in this sphere is much less unique.

And on a final, worrying note: a lot of countries are near their stall speed. And that US fiscal cliff risk is not going anywhere fast.

With U.S. growth currently at 2¼ percent on a four-quarter basis, the stresses associated with going over the fiscal cliff could easily push the U.S. economy through its 1½ percent stall speed, which historically has brought with it a 3 percentage point decline in U.S. growth and plunged the country into recession. Moreover, as the U.S. economy crosses its stall speed, the spillovers to the rest of the world have traditionally been about half as large as the downward pull on the United States, suggesting that aggregate global growth—now running at 2½ percent—could easily sink to 1 percent or even lower.

Proliferation

#### And, SMRs are super safe – accidents, attack, disasters

Rosner and Goldberg 11 (Robert Rosner, Professor, Departments of Astronomy and Astrophysics, and Physics, and the College; Senior Fellow @ UChicago. Stephen M. Goldberg is Special Assistant to the Director at Argonne National Laboratory)

(November 2011. Energy Policy Institute at Chicago The Harris School of Public Policy Studies “Small Modular Reactors – Key to Future Nuclear Power Generation in the U.S.” https://epic.sites.uchicago.edu/sites/epic.uchicago.edu/files/uploads/EPICSMRWhitePaperFinalcopy.pdf)

While the focus in this paper is on the business case for SMRs, the safety case also is an important element of the case for SMRs. Although SMRs (the designs addressed in this paper) use the same fuel type and the same light water cooling as gigawatt (GW)-scale light water reactors (LWRs), there are significant enhancements in the reactor design that contribute to the upgraded safety case. Appendix A provides a brief overview of the various technology options for SMRs, including the light water SMR designs that are the focus of the present analysis.

Light water SMR designs proposed to date incorporate passive safety features that utilize gravity-driven or natural convection systems – rather than engineered, pump-driven systems – to supply backup cooling in unusual circumstances. These passive systems should also minimize the need for prompt operator actions in any upset condition. The designs rely on natural circulation for both normal operations and accident conditions, requiring no primary system pumps. In addition, these SMR designs utilize integral designs, meaning all major primary components are located in a single, high-strength pressure vessel. That feature is expected to result in a much lower susceptibility to certain potential events, such as a loss of coolant accident, because there is no large external primary piping. In addition, light water SMRs would have a much lower level of decay heat than large plants and, therefore, would require less cooling after reactor shutdown. Specifically, in a post-Fukushima lessons-learned environment, the study team believes that the current SMR designs have three inherent advantages over the current class of large operating reactors, namely:

1. These designs mitigate and, potentially, eliminate the need for back-up or emergency electrical generators, relying exclusively on robust battery power to maintain minimal safety operations.

2. They improve seismic capability with the containment and reactor vessels in a pool of water underground; this dampens the effects of any earth movement and greatly enhances the ability of the system to withstand earthquakes.

3. They provide large and robust underground pool storage for the spent fuel, drastically reducing the potential of uncovering of these pools.

#### Small arsenals are just as dangerous – they’ll get bigger and more complex, are susceptible to instability and accidental launch.

Busch, Associate Professor of Political Science, Department of Government, Christopher Newport University, former Research Fellow, Belfer Center for Science and International Affairs, Kennedy School of Government, ‘4 (Nathan E. No End In Sight: The Continuing Menace of Nuclear Proliferation. University Press of Kentucky, p. 287-289)

Both David Karl and Jordan Seng argue that the nuclear weapons in developing countries will be relatively easy to control, even without sophisticated use control devices, because their arsenals will be small and their command systems simple." But there are serious problems with this argument. First, as we have seen, there is little evidence to suggest that emerging NWSs will remain satisfied with small arsenals and simple command structures. Instead, most evidence suggests that they will tend to develop larger, more complex systems, which increase organizational difficulties and will be much harder to control. As the Russian case demonstrates, complex systems can deteriorate during economic crises due to a lack of resources for maintenance and repairs. Moreover, even if some emerging NWSs do keep their arsenals small and simple, their controls could still be severely weakened during domestic upheavals. The most serious weaknesses in Russia's controls were caused less by the size of its nuclear arsenal or the complexity of its command structure than by the type of nuclear controls that it inherited from the Soviet Union. To be sure, the scope of Russia's problems has been exacerbated by size and complexity, but because Russia's nuclear controls relied heavily on guards, gates, and guns, Russia still would have had difficulties maintaining its nuclear controls even if its nuclear system had been much smaller. Emerging NWSs probably will have problems similar to Russia's during political upheavals because they are likely to rely on the "3 G's" for their nuclear command and control systems. Indeed, we have seen that the arsenals in China, India, and Pakistan are potentially vulnerable to accidental or unauthorized use, even though they are comparatively small. For example, although information on the incidents that occurred during the Cultural Revolution and the Tiananmen Square crisis is incomplete, these incidents do appear to be important counterexamples to Karl's and Seng's arguments. There were several close calls in China during the Cultural Revolution (including what could be interpreted as an unauthorized test launch of a nuclear weapon in 1966), even though China's arsenal ranged from twenty to one hundred warheads during these incidents." It is also quite possible that China could experience severe instability in the future. There are widespread reports of increasing dissatisfaction with the high levels of corruption in the Chinese Communist Party (CCP), increasing regionalist movements, and skyrocketing crime rates. These factors have led a number of analysts to argue that the regime could experience severe instability or even collapse. The prospects for political and economic stability have been even worse in Pakistan. Between 1998 and 2001. Pakistan's economy teetered continually on the brink of collapse. While the U.S. decision to remove economic sanctions in September 2001 has improved the prospects for Pakistan's economy, an economic recovery is by no means guaranteed!' If Pakistan were again to encounter severe economic stresses, it could experience difficulties in controlling its nuclear weapons and fissile materials that are similar to those experienced in Russia. Although Pakistan's nuclear complex is obviously much smaller than Russia's, so are its economy, technical capabilities. organizational infrastructures, and experience with nuclear weapons. Thus, it is possible that Pakistan could experience an even more severe breakdown in its nuclear controls than Russia has experienced ii its economy were again to become unstable. Moreover, during the U.S. military campaign in Afghanistan, numerous scholars expressed concerns that political upheavals could undermine Pakistani nuclear controls. 17 Although the political instability appears to have been less severe than many feared it would be, it might have worsened significantly if the bombing campaign had lasted longer than it did." The widespread public opposition to the US led invasion of Iraq in 2003, along with the military reginie's strengthening of Pakistan's radical Islamic parties in late 2002, suggests that we could yet see regime threatening instability in Pakistan!' Given the type of nuclear controls on which Pakistan relies, these controls could become severely weakened during extreme political upheavals. As these accounts suggest, the risks of accidental and unauthorized use could be very high in emerging NWSs, particularly during nuclear crises or periods of domestic instability. The prospects for proliferation are therefore especially disturbing because emerging NWSs will tend to be more unstable than the established NWSs have been. (For example, all three of the emerging nuclear powers examined in this study Iraq, Iran, and North Korea have had significant risks of domestic instability. Although Saddam Hussein proved able to crush any opposition, he did experience a number of coup attempts ithe most serious in 1992), as well as repeated riots and uprisings (in 1991, 1995. 1996, and 2000) during his time in power' And once an external invasion tcxk place, all central authority evaporated quite rapidly." The risks of regime threatening upheavals are much greater, however, in North Korea and Iran than in Ba'athist Iraq. As we have seen, neither of these countries has great prospects for political stability in the near to mid term." In the event of severe upheavals or regime collapse, they could experience a rapid deterioration of their central controls over their nuclear weapons and related materials.

Nor is it clear that simple command structures in emerging NWSs will significantly reduce the risks of accidental or unauthorized use, as Seng and Karl contend. Indeed, as several analysts have argued, the rudimentary command and control structures in India and Pakistan increase the likelihood of accidental or unauthorized use, particularly during crises. The Indian military currently has little experience in handling nuclear weapons. If India's nuclear weapons were given to the military during a crisis, they would be as inexperienced in preventing their use as they would be in using them? Moreover, hecause Pakistan currently lacks an enunciated nuclear doctrine, cxiiable decision making or communications systems, or explicit targeting information, there is an increased likelihood that Pakistan's own troops might undertake strikes on their own." These are risks that any emerging NWS would likely experience as they worked to develop nuclear weapons, formulate use doctrines, and establish command and control systems. But since many of the countries most likely to develop nuclear weapons in the foreseeable future would have to consider the chances of preventive strikes as quite high, they might choose to deploy (or be forced to deploy) their nuclear weapons before they have all these issues sufficiently worked out. In these instances, the simple command structures would not necessarily prevent accidental or unauthorized use, and in fact could increase these risks.

Solvency

#### Economies of scale not proven – methodological failure

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(6/13/2012 “The future of the nuclear industry reconsidered: Risks, uncertainties, and continued promise”

 http://www.sciencedirect.com/science/article/pii/S0301421512004053)

Econometric evidence on economies of scale in nuclear power is scant and fairly mixed. The determination of how scaling-up affects unit costs has been marred by methodological uncertainties (e.g., whether overnight costs as commonly calculated can accurately represent economies of scale), the lack of an internationally agreed upon definition of the basic variables and standards for nuclear power plant costing (different cost assessments make varying assumptions that render direct comparisons among them very difficult), the growing divergence between good and poor nuclear plant construction performance,

and the scarcity of new orders (especially in the United States) in recent years. The above difficulties notwithstanding, several studies from around the world have sought to estimate the savings in overnight costs arising from economies of scale when the size of power plants increases from 300 to the 1300 MWe range (UoC, 2004).

As the industry scaled up during the 1970–1990 period, construction time schedules increased significantly. An increase in construction time generally results in time-related costs like interest and inflation. And although it is intuitively less clear, there also exists a relationship between construction time and overnight costs—construction delays could imply additional regulatory burdens (since regulation tends to increase over time), higher labor costs (since workers are often laid off and subsequently re-hired), and greater project coordination, supervision, and morale problems (as the recent experience from the EPR project at Olkiluoto clearly indicates). When construction time effects are taken into account, it appears that, at least in the United States, nuclear plant construction has been characterized by very modest, if any, economies of scale. In fact some studies have even detected diseconomies of scale ( [Cantor and Hewlett, 1988] and UofC (University of Chicago), 2004).

#### SMR developed and deployed fast

Schlesinger 8/28/12 (Richard Schlesinger is an American television news reporter and correspondent for 48 Hours Mystery. Schlesinger was born in New York)

(“NUCLEAR aims small” http://www.energybiz.com/magazine/article/281595/nuclear-aims-small)

Third, while several fundamentally different forms of SMRs are in development here and abroad, including high-temperature gas-cooled reactors, molten salt reactors and molten metal reactors, the likelihood is that the DOE will focus on light-water reactors, because that's the technology the Nuclear Regulatory Commission is most familiar with, having already licensed large light-water reactors. "Light-water reactors are most likely to meet NRC licensing requirements within our time frame," says John E. Kelly, deputy assistant secretary for nuclear reactor technologies at the DOE. "We're open to other technologies, but how quickly they can go through the regulatory system is a concern."

The enormous up-front capital investment and the long construction time have been the greatest hurdles to the wider adoption of nuclear plants. SMRs address both issues. Large reactors have, traditionally, been built on-site. Precisely because they are smaller, SMRs are being designed to be built in factories and delivered in finished pieces for on-site installation. A large nuclear plant may take anywhere from eight to 10 years from first spade to first electron. Kathryn J. Jackson, senior vice president and chief technology officer for Westinghouse Electric, estimates construction of the company's factory-built SMRs could take just 24 months. She notes that time frame is competitive with the 18 to 24 months it takes to construct a combined-cycle gas turbine.

The Westinghouse design is modular in the sense that it will be built in pieces and assembled on-site. "The goal is to be as modular as possible, perhaps 90 percent modular," says Jackson. "Parts will be built in factories and shipped to the site by rail or truck. Building everything in a consistent way saves enormous time. Studies have shown that building this way, every hour spent in a factory equates to about three hours at an assembly facility on-site, and that one hour is equivalent to about eight hours of stick-built construction in the hole, the traditional way of building large nuclear plants." Because construction time is perhaps the largest factor in up-front nuclear costs, cutting that time by as much as 80 percent suddenly brings nuclear into the budgetary range of many more utilities.

Warner Baxter, president and CEO of Ameren Missouri, the utility that is partnering with Westinghouse in the DOE application, agrees. "The SMR, with its smaller footprint, shorter construction period, and factory-based concept mitigates, if it doesn't eliminate, the large up-front capital risk. It makes it more attractive to us and, I believe, will make nuclear more attractive to many more utilities," he says.

#### Solves waste

Biello 12 (David Biello is the award-winning online associate editor for environment and energy)

(3/27/12 “Small Reactors Make a Bid to Revive Nuclear Power” http://www.scientificamerican.com/article.cfm?id=small-reactors-bid-to-revive-nuclear-power&page=4)

Small modular reactors may help with two of the biggest challenges facing the nuclear industry: the growing stores of waste from existing reactors and residue from the mass production of nuclear weapons as well as the overall safety of nuclear power. GE's PRISM fast reactor, General Atomic's helium-cooled fast reactor, or Hyperion Power's liquid lead-bismuth cooled reactor could all turn waste into fuel. Hyperion hopes to demonstrate its reactor, capable of generating 25 megawatts of electricity, at the Savannah River National Laboratory in South Carolina. The site has also signed memorandums of understanding to host prototypes of the NuScale and Holtech reactors.

Prolif K

#### 1 - We aren’t saying they’re crazy or incompetent, we just say nuclear weapons are bad. We do not endorse existing nuclear weapons – our escalation scenarios are an indictment of them.

#### 2 —Attempt to prevent violent proliferation creates cooperative nonconflictual – not the racism you assume

Walker 7 (William Walker is Professor of International Relations at the University of St Andrews which he joined in 1996.)

(“International nuclear order: a rejoinder” International Affairs. 27 JUL 2007)

Roberts ends his article with a brief section headed ‘An auspicious moment for¶ order?’, his conclusion being that this is not such a moment. It is hard to disagree¶ when confronted with mayhem in the Middle East, Iran’s stubborn defi ance of the¶ UN Security Council, the open-ended Indian and Pakistani weapon programmes,¶ the fl exing of Russian muscles, the loss of US authority, and much else besides.¶ No doubt there are more nasty surprises in store (competition for control over¶ Pakistan’s nuclear capabilities after the current military government’s downfall is¶ becoming a favourite among doomsters). Yet I wonder whether this degree of¶ despondency, which has become commonplace and risks becoming a self-fulfi lling¶ prophecy, will turn out to be justifi ed, especially if leading states and policy entrepreneurs¶ now summon the eff ort to arrest the slide, with the 2010 NPT Review¶ Conference providing an obvious occasion on which to recommit states to the¶ Treaty and associated norms, rules and instruments. Ned Lebow has correctly¶ observed that ‘social orders at every level undergo cycles of consolidation and¶ decline’.18 Might the international nuclear order be heading, after the decline that¶ followed its early post-Cold War consolidation, towards renewed consolidation?¶ Here are six reasons why, hoping against hope, this might occur.¶ First, a chastened United States has embarked on a reconsideration of its international¶ strategies which, if not returning it precisely to the status quo ante, is likely¶ to draw it back towards cooperative actions and innovations, and towards a more¶ respectful attitude towards international norms, laws and institutions, especially¶ after a new President has assumed offi ce in January 2009.

Second, there has recently been more convergence than divergence of objectives¶ and policies among the concerts of power that have formed to manage relations¶ with Iran and North Korea, and among the wide community of states lending¶ support within the IAEA and United Nations.¶ Third, the IAEA has shown remarkable resilience over the past decade, gaining¶ rather than losing international prestige despite many setbacks and a serious shortage¶ of manpower and fi nancial resources. Furthermore, there have been signifi cant¶ advances in the techniques of detection and verifi cation—technical change can¶ be helpful as well as unhelpful—upon which a stronger system of regulation and¶ early warning can now be constructed.¶ Fourth, the need to expand civil nuclear trade and investment in response to¶ global warming is driving a search for means of cooperative governance that will¶ allay fears of weapon proliferation. Although there are drawbacks with Henry¶ Sokolski’s proposals in the special issue, they provide an illustration of the search¶ that is under way.19

Fifth, Hassner rightly emphasizes the hierarchical nature of the NPT, and the¶ problems that are likely to arise when the hierarchy of power that has pertained¶ over most of the Treaty’s lifetime, and is embedded in the Treaty’s identifi cation of¶ specifi c states having rights to call themselves NWS, gives way to another hierarchy¶ of power in coming decades. Power transition theory warns of the confl icts and arms¶ races that can arise when emerging powers, such as China and India in years ahead,¶ challenge established great powers.20 Rising powers in Asia and elsewhere will also¶ wish to play a larger part in the shaping of international norms and institutions.¶ However, the behaviour of China and India could turn out to be more constructive¶ than destructive of nuclear order: China is committed to strategic caution by its¶ pre-eminent interest in economic stability and in avoiding Japan’s nuclearization;¶ and India may (only may) become a constructive force if a mutually satisfying¶ rapprochement with the United States and with the non-proliferation regime can be¶ negotiated. Furthermore, the US development of missile defence might ameliorate¶ rather then aggravate great power relations if it were used as a bargaining stick to¶ negotiate deeper arms reductions, if missile defences were limited to the provision¶ of common protection against proliferating states, and if China and Russia could¶ be given convincing guarantees that missile defences and associated technologies¶ would not be deployed to gain strategic advantage over them. Ideally, the regulation¶ of missile defence should become part of a wider agreement on limiting the¶ militarization of space, including bans on the targeting of satellites.¶ Finally, there has developed a strong common interest among states in¶ preventing terrorist groups, insurgents or their criminal suppliers from gaining¶ access to nuclear materials and technologies. In retrospect, I gave too little attention¶ to the risks that nuclear weapons could, in some form, begin to play a part in¶ irregular warfare, as did other contributors to the special issue. States’ responses to¶ those risks also merited more dicussion The desire to minimize them has tended¶ to unify more than divide states, notwithstanding their many disputes, and will¶ probably continue to do so. Paul Schulte’s remark about the contemporary need, in¶ addition to the systems of deterrence and abstinence, for a ‘system of policing’ has¶ given me particular pause for thought.21

#### 3 - We solve nuclear apartheid by promoting the safe spread of peaceful nuclear power, that’s Kessides. It isn’t racist to say that more nuclear weapons are less stable.

#### 4 - Perm – do both – key to conflict mitigation

David S. Yost, Phd-Prof. @ Naval Postgraduate School, ‘7 [*International Affairs* 83.3, “Analysing international nuclear order,” p. Blackwell]

Bull’s reminder that great powers may behave like ‘great predators’ instead of the ‘great responsibles’ that would consistently pursue a nuclear non- proliferation and disarmament agenda helps to explain why the major powers are likely to retain their nuclear deterrence postures for the indefinite future. Rivalries may be contained within certain bounds indefi nitely through threats of nuclear retaliation, but distrust is likely to persist. Despite the apparently reduced risks of major-power nuclear war in the past two decades, there cannot be any absolute guarantees. Aside from the risks of deterrence failure, accidents or breakdowns of control arrangements, Bull noted,

the preservation of mutual nuclear deterrence obstructs the long-term possibility of establishing international order on some more positive basis. The preservation of peace among the major powers by a system in which each threatens to destroy or cripple the civil society of the other, rightly seen as a contemporary form of security through the holding of hostages, refl ects the weakness in international society of the sense of common interest.67 Bull’s observation about ‘the weakness in international society of the sense of common interest’ remains entirely pertinent. It should be noted, moreover, that the concept of ‘common interest’ normally emphasizes material interests such as peace and prosperity. Martin Wight argued that ‘in the long run the idea of a common moral obligation is probably a more fruitful social doctrine than the idea of a common material interest’.68 The sense of ‘a common moral obligation’ in international society is, however, probably even weaker at the current juncture than the sense of shared material interests.

The generally insufficient level of commitment to ‘a common moral obligation’ includes a low level of allegiance in key regions of the world to the non- proliferation and disarmament ideals championed by Walker. The most serious obstacles to the realization of his vision reside not, as he suggests, in the United States but in the rise of new power centres, particularly in Eurasia, and the emergence of violent and highly capable non-state actors. As Pierre Hassner observes,

Probably the most important reason for the crisis of the nuclear order, and for my rather pessimistic assessment of its chances of being solved any time soon, is the sharp decline of the international political order on which the NPT was based. The two elements on which any such order has to rely—power and legitimacy—have been profoundly modifi ed in a direction unfavourable to the West.69

Although Walker deprecates the idea of ‘muddling through’ and deplores the focus in US policy on ‘certain actors in the world whose possession of nuclear weapons or weapon-related technologies would be intolerable’, there is a certain practical logic in focusing on the cases and tasks immediately at hand while pursuing broader positive political changes. Aside from concentrating on the most dangerous specific proliferants, the most pressing priority—while maintaining a reliable posture for deterrence, dissuasion and defence—is reforming and strengthening the NPT-based nuclear non-proliferation regime as a whole; and that includes remedying (to the maximum extent possible) the signifi cant deficiencies present in the treaty since its origin. Further proliferation would probably make the achievement of nuclear disarmament an even more remote prospect and might well increase the risk of nuclear war.

#### SMRs exports are nuclear reparations – exports enable us to fulfill our commitment to give peaceful nuclear energy in exchange for global nonprolif. Don’t make the perfect the enemy of the good

Paul Schulte, Director of Prolif & Arms Control - Ministry of Defense @ UK, ‘7 [*International Affairs* 83.3, “Universal vision or bounded rationality?” p. Blackwell]

It is also very much worth remembering that, despite Walker’s criticisms, the effect of the imperfect NPT regime is not simply to exploit the non-nuclear weapon states and keep them at a permanent disadvantage. Crucial benefi ts of Walker’s manged system of abstinence still apply: ‘the nuclear umbrellas (extended deterrence) held over … allies, which reduced incentives to acquire nuclear arms; and security assurances to states renouncing nuclear weapons that they would not be used against them’. And, while the treaty holds, non-nuclear weapon states can generally (though to inevitably varying degrees) expect also to avoid regional nuclear arms races, in which they might have to cope with newly nuclear-armed neighbours, **whether or not** they obtain nuclear weapons themselves. These systemic **incentives** surely explain much of the continuing and still significant strength of the NPT regime. In the particular, undoubtedly critical, case of Iran, the IAEA has, as intended, been functioning effectively in bringing objective verification evidence to the world’s attention. In response, rather than unduly concerning themselves with Walker’s abstract ‘hydra-headed problem of reconciliation’, the UN Security Council and the EU, as well as the United States, with the discreet support of Gulf governments, have so far, as Walker in fact concedes, indicated a willingness to act strongly. This international determination takes into account Iran’s previous undertakings and compliance history, its specific political culture, and its fateful geopolitical position in the centre of an unstable region of immense worldwide importance. As they used to say, grudgingly, during the Northern Ireland Troubles, ‘It’s the kind of solution which **might** work in practice but will never stand up in theory.’ Conclusion There is a permanent role for eloquent reminders of universal background imperatives. Walker’s article in this issue of International Affairs fulfils that role, emphasizes the importance of a sense of overall coherence related to a hopeful destination, and vividly expresses the intellectual frustration felt by non-nuclear weapon states and anti-nuclear campaigners. But, while so many decision-makers—and not only those in the American government—remain in practice unpersuaded of the strength and practical applicability of his interpretation of the nuclear disarmament imperative, there is also a case for bounded rationality and dogged engagement with current strategic and political realities. (Game theory, too, came out of the enlightenment.) It is not unenlightened to work to counter further proliferation which would permanently weaken the present regime and create additional obstacles to the eventual project of total nuclear abolition. **The NPT regime is the best we have**. As so many experts have so often observed, the treaty would not be achievable now—perhaps even a little less so after Walker’s critique. It would be unfortunate, therefore, if his passion for abstract systemic perfection led to further undermining of regime legitimacy and credibility. In nuclear matters, as in others, we should not exalt a universal vision of the best by destructively deprecating the actually existing, though contingent, good. Even Kant saw the necessity to work sometimes with things as they are, because ‘Out of the crooked timber of humanity, no straight thing was ever made’.6

#### 5 - Not a question of rationality - accidents are more likely – newer proliferators can’t afford safeguards

Busch, Associate Professor of Political Science, Department of Government, Christopher Newport University, former Research Fellow, Belfer Center for Science and International Affairs, Kennedy School of Government, ‘4 (Nathan E. No End In Sight: The Continuing Menace of Nuclear Proliferation. University Press of Kentucky, p. 7)

Pessimists argue that nuclear weapons in proliferating states will be susceptible to accidental use because the weapon designs will tend to be relatively crude and the weapons will not have undergone the proper testing to ensure that they are secure." In addition, they argue, it is less likely that these states will have sufficient resources to implement the procedures and technologies necessary for preventing accidental use. The states will therefore be forced to make compromises cutting corners in critical technologies, or even simply considering safety issues to be less important than the initial development of nuclear arsenals. Safety and control measures will therefore be marginalized or even largely ignored, as states focus on other priorities. 40

#### Perm do both – Alt can’t solve alone – involving problem solving approach and engaging through policy is necessary to redefine security

Gunning 2007 [Jeroen, Lecturer in Int’l Politics @ U of Wales, Government and Opposition 42.3, “A Case for Critical Terrorism Studies?”]

The notion of emancipation also crystallizes the need for policy engagement. For, unless a ‘critical’ field seeks to be policy relevant, which, as Cox rightly observes, means combining ‘critical’ and ‘problem-solving’ approaches, it does not fulfil its ‘emancipatory’ potential.94 One of the temptations of ‘critical’ approaches is to remain mired in critique and deconstruction without moving beyond this to reconstruction and policy relevance.Vital as such critiques are, the challenge of a critically constituted field is also to engage with policy makers – and ‘terrorists’ – and work towards the realization of new paradigms, new practices, and a transformation, however modestly, of political structures. That, after all, is the original meaning of the notion of ‘immanent critique’ that has historically underpinned the ‘critical’ project and which, in Booth's words, involves ‘the discovery of the latent potentials in situations on which to build political and social progress’, as opposed to putting forward utopian arguments that are not realizable. Or, as Booth wryly observes, ‘this means building with one's feet firmly on the ground, not constructing castles in the air’ and asking ‘what it means for real people in real places’.96 Rather than simply critiquing the status quo, or noting the problems that come from an un-problematized acceptance of the state, a ‘critical’ approach must, in my view, also concern itself with offering concrete alternatives. Even while historicizing the state and oppositional violence, and challenging the state's role in reproducing oppositional violence, it must wrestle with the fact that ‘the concept of the modern state and sovereignty embodies a coherent response to many of the central problems of political life’, and in particular to ‘the place of violence in political life’. Even while ‘de-essentializing and deconstructing claims about security’, it must concern itself with ‘how security is to be redefined’, and in particular on what theoretical basis.97 Whether because those critical of the status quo are wary of becoming co-opted by the structures of power (and their emphasis on instrumental rationality),98 or because policy makers have, for obvious reasons (including the failure of many ‘critical’ scholars to offer policy relevant advice), a greater affinity with ‘traditional’ scholars, the role of ‘expert adviser’ is more often than not filled by ‘traditional’ scholars.99 The result is that policy makers are insufficiently challenged to question the basis of their policies and develop new policies based on immanent critiques. A notable exception is the readiness of European Union officials to enlist the services of both ‘traditional’ and ‘critical’ scholars to advise the EU on how better to understand processes of radicalization.100 But this would have been impossible if more critically oriented scholars such as Horgan and Silke had not been ready to cooperate with the EU. Striving to be policy relevant does not mean that one has to accept the validity of the term ‘terrorism’ or stop investigating the political interests behind it. Nor does it mean that each piece of research must have policy relevance or that one has to limit one's research to what is relevant for the state, since the ‘critical turn’ implies a move beyond state-centric perspectives. End-users could, and should, thus include both state and non-state actors such as the Foreign Office and the Muslim Council of Britain and Hizb ut-Tahrir; the Northern Ireland Office and the IRA and the Ulster Unionists; the Israeli government and Hamas and Fatah (as long as the overarching principle is to reduce the political use of terror, whoever the perpetrator). It does mean, though, that a critically constituted field must work hard to bring together all the fragmented voices from beyond the ‘terrorism field’, to maximize both the field's rigour and its policy relevance. Whether a critically constituted ‘terrorism studies’ will attract the fragmented voices from outside the field depends largely on how broadly the term ‘critical’ is defined. Those who assume ‘critical’ to mean ‘Critical Theory’ or ‘poststructuralist’ may not feel comfortable identifying with it if they do not themselves subscribe to such a narrowly defined ‘critical’ approach. Rather, to maximize its inclusiveness, I would follow Williams and Krause's approach to ‘critical security studies’, which they define simply as bringing together ‘many perspectives that have been considered outside of the mainstream of the discipline’.101 This means refraining from establishing new criteria of inclusion/exclusion beyond the (normative) expectation that scholars self-reflexively question their conceptual framework, the origins of this framework, their methodologies and dichotomies; and that they historicize both the state and ‘terrorism’, and consider the security and context of all, which implies among other things an attempt at

empathy and cross-cultural understanding.102 Anything more normative would limit the ability of such a field to create a genuinely interdisciplinary, non-partisan and innovative framework, and exclude valuable insights borne of a broadly ‘critical’ approach, such as those from conflict resolution studies who, despite working within a ‘traditional’ framework, offer important insights by moving beyond a narrow military understanding of security to a broader understanding of human security and placing violence in its wider social context.103 Thus, a poststructuralist has no greater claim to be part of this ‘critical’ field than a realist who looks beyond the state at the interaction between the violent group and their wider social constituency.104

Civilization K

#### Industrial civilization is sustainable – innovation.

Indur Goklany, US Dept of Interior, and Anthony Trewavas, Institute of Cell & Molecular Biology @ Edinburgh, 2003 (http://www.nature.com/nature/journal/v423/n6936/full/423115a.html)

Paradoxically, both technology and economic development provide the means to solve the very problems they create. Without technological development in the first instance, the human population would be smaller, because higher birth rates would have been offset by higher mortality rates. Dispensing with present technology now would undoubtedly be catastrophic in human terms — people would be hungrier, unhealthier and shorter-lived , without the world necessarily becoming ecologically more stable. Similarly, foregoing economic development, which helps to generate wealth, would also be calamitous (see I. M. Goklany, Case Western Law Review; in the press). Only wealthy countries can afford the scientific infrastructure to research, develop and put into use clean technologies that increase the Earth's carrying capacity. For all of these reasons, the richest countries, not surprisingly, are also the most technologically advanced. They have the highest crop yields per hectare, which is inversely related to the demand for land, a primary element in the ecological footprint. Inefficient agriculture creates pressures for new agricultural land at the expense of virgin forest or marginal lands in countries with growing populations. If agricultural-technology development had been frozen in 1961, we estimate, using data from the Food and Agriculture Organisation (see FAOSTAT 2003: http://apps.fao.org), that cropland would have had to increase from its present 11% to some 25% of the planetary surface to produce the same amount of food now. Accepting Rees's estimate that we currently exceed the Earth's carrying capacity by one-fifth, without technological development we would now exceed it by one-third. Virtually no natural forest would now remain and the rest of nature would be even more embattled. Yes, we recognize that current agricultural technology, with its reliance on pesticides and fertilizers, created many new problems even as it solved old ones, but that is exactly why we favour technological change. New technologies need not be perfect, but they should improve on current versions. That is why we support prudent use of agricultural biotechnology — another imperfect technology, but vastly superior to conventional technologies. The trick is not to sacrifice the present for the future, or vice versa. Without technological change and economic development, there can be no solution to the predicament of meeting human needs while containing human impact on the planet. Although neither technological change nor economic development is a panacea, they make a solution more likely.

#### Rejecting industrial civilization results in extinction – you should vote aff to refuse to sacrifice humanity.

Keith Lockitch, PhD in Physics, 1/9/2009 (http://ari.convio.net/site/News2?page=NewsArticle&id=22271&news\_iv\_ctrl=2411)

Everything we do to sustain our lives has an impact on nature. Every value we create to advance our well-being--every ounce of food we grow, every structure we build, every iPhone we manufacture--is produced by extracting raw materials and reshaping them to serve our needs. Every good thing in our lives comes from altering nature for our own benefit. From the perspective of human life and happiness, a big "environmental footprint" is an enormous positive. This is why people in India and China are striving to increase theirs: to build better roads, more cars and computers, new factories and power plants and hospitals. But for environmentalism, the size of your "footprint" is the measure of your guilt. Nature, according to green philosophy, is something to be left alone--to be preserved untouched by human activity. Their notion of an "environmental footprint" is intended as a measure of how much you "disturb" nature, with disturbing nature viewed as a sin requiring atonement. Just as the Christian concept of original sin conveys the message that human beings are stained with evil simply for having been born, the green concept of an "environmental footprint" implies that you should feel guilty for your very existence. It should hardly be any surprise, then, that nothing you do to try to lighten your "footprint" will ever be deemed satisfactory. So long as you are still pursuing life-sustaining activities, whatever you do to reduce your impact on nature in one respect (e.g., cloth diapers) will simply lead to other impacts in other respects (e.g., water use)--like some perverse game of green whack-a-mole--and will be attacked and condemned by greens outraged at whatever "footprint" remains. So long as you still have some "footprint," further penance is required; so long as you are still alive, no degree of sacrifice can erase your guilt. The only way to leave no "footprint" would be to die--a conclusion that is not lost on many green ideologues. Consider the premise of the nonfiction bestseller titled "The World Without Us," which fantasizes about how the earth would "recover" if all humanity suddenly became extinct. Or consider the chilling, anti-human conclusion of an op-ed discussing cloth versus disposable diapers: "From the earth’s point of view, it’s not all that important which kind of diapers you use. The important decision was having the baby." The next time you trustingly adopt a "green solution" like fluorescent lights, cloth diapers or wind farms, only to be puzzled when met with still further condemnation and calls for even more sacrifices, remember what counts as a final solution for these ideologues. The only rational response to such a philosophy is to challenge it at its core. We must acknowledge that it is the essence of human survival to reshape nature for our own benefit, and that far from being a sin, it is our highest virtue. Don’t be fooled by the cries that industrial civilization is "unsustainable." This cry dates to at least the 19th century, but is belied by the facts. Since the Industrial Revolution, population and life expectancy, to say nothing of the enjoyment of life, have steadily grown.

Perm do both

####  (\_\_) Totalitarianism. The alternative would gladly give away all of human liberal progress in the name of their anti-civilizational project, despite the leaps and bounds in equality that have been made. The kritik reduces all of history to technological commiseration, valuing the lives of others as meaningless. It’s this type of logic that caused the genocides of the twentieth century. \*

Murray Bookchin, Political and Social Philosopher, 1995 (http://lamiae.meccahosting.com/~a0004f7f/StudiesInAnti-Capitalism/Documents\_TWO\_files/SocialAnarchismOrLifestyleAnarchism.pdf)

What is of crucial importance is that the regression to primitivism among lifestyle anarchists denies the most salient attributes of humanity as a species and the potentially emancipatory aspects of Euro-American civilization. Humans are vastly different from other animals in that they do more than merely adapt to the world around them; they innovate and create a new world, not only to discover their own powers as human beings but to make the world around them more suitable for their own development, both as individuals and as a species. Warped as this capacity is by the present irrational society, the ability to change the world is a natural endowment, the product of human biological evolution -- not simply a product of technology, rationality, and civilization. That people who call themselves anarchists should advance a primitivism that verges on the animalistic, with its barely concealed message of adaptiveness and passivity, sullies centuries of revolutionary thought, ideals, and practice, indeed defames the memorable efforts of humanity to free itself from parochialism, mysticism, and superstition and change the world. For lifestyle anarchists, particularly of the anticivilizational and primitivistic genre, history itself becomes a degrading monolith that swallows up all distinctions, mediations, phases of development, and social specificities. Capitalism and its contradictions are reduced to epiphenomena of an alldevouring civilization and its technological 'imperatives' that lack nuance and differentiation. History, insofar as we conceive it as the unfolding of humanity's rational component - - its developing potentiality for freedom, self-consciousness, and cooperation -- is a complex account of the cultivation of human sensibilities, institutions, intellectuality, and knowledge, or what was once called 'the education of humanity.' To deal with history as a steady 'Fall' from an animalistic 'authenticity,' as Zerzan, Bradford, and their compatriots do in varying degrees in a fashion very similar to that of Martin Heidegger, is to ignore the expanding ideals of freedom, individuality, and self-consciousness that have marked epochs of human development -- not to speak of the widening scope of the revolutionary struggles to achieve these ends. Anticivilizational lifestyle anarchism is merely one aspect of the social regression that marks the closing decades of the twentieth century.

#### (\_\_) Alt links – revolt against society destroys individuality.

Murray Bookchin, Political and Social Philosopher, 1995 (http://lamiae.meccahosting.com/~a0004f7f/StudiesInAnti-Capitalism/Documents\_TWO\_files/SocialAnarchismOrLifestyleAnarchism.pdf)

Compelling as such declarations may be -- and in the United States they have won considerable admiration from the socalled libertarian (more accurately, proprietarian) right, with its avowals of 'free' enterprise -- they reveal an anarchism very much at odds with itself. By contrast, Michael Bakunin and Peter Kropotkin held essentially collectivist views -- in Kropotkin's case, explicitly communist ones. Bakunin emphatically prioritized the social over the individual. Society, he writes, 'antedates and at the same time survives every human individual, being in this respect like Nature itself. It is eternal like Nature, or rather, having been born upon our earth, it will last as long as the earth. A radical revolt against society against Nature, human society being nothing else but the last great manifestation or creation of Nature upon this earth. And an individual who would want to rebel against society . . . would place himself beyond the pale of real existence.'[1] Bakunin often expressed his opposition to the individualistic trend in liberalism and anarchism with considerable polemical emphasis. Although society is 'indebted to individuals,' he wrote in a relatively mild statement, the formation of the individual is social: 'even the most wretched individual of our present society could not exist and develop without the cumulative social efforts of countless generations. Thus the individual, his freedom and reason, are the products of society, and not vice versa: society is not the product of individuals comprising it; and the higher, the more fully the individual is developed, the greater his freedom -- and the more he is the product of society, the more does he receive from society and the greater his debt to it.'[2]

#### Modern society is not the root cause of instrumentalism.

Murray Bookchin, Political and Social Philosopher, 1995 (http://lamiae.meccahosting.com/~a0004f7f/StudiesInAnti-Capitalism/Documents\_TWO\_files/SocialAnarchismOrLifestyleAnarchism.pdf)

But once the vow of silence was broken, everything went wrong! For reasons known only to God and Zerzan. The emergence of symbolic culture, with its inherent will to manipulate and control, soon opened the door to the domestication of nature. After two million years of human life within the bounds of nature, in balance with other wild species, agriculture changed our lifestyle, our way of adapting, in an unprecedented way. Never before has such a radical change occurred in a species so utterly and so swiftly. . . . Selfdomestication through language, ritual, and art inspired the taming of plants and animals that followed. (FP, pp. 27-28, emphasis added) There is a certain splendor in this claptrap that is truly arresting. Significantly different epochs, hominid and/or human species, and ecological and technological situations are all swept up together into a shared life 'within the bounds of nature.' Zerzan's simplification of the highly complex dialectic between humans and nonhuman nature reveals a mentality so reductionist and simplistic that one is obliged to stand before it in awe. To be sure, there is very much we can learn from preliterate cultures -- organic societies, as I call them in The Ecology of Freedom -- particularly about the mutability of what is commonly called 'human nature.' Their spirit of in-group cooperation and, in the best of cases, egalitarian outlook are not only admirable -- and socially necessary in view of the precarious world in which they lived -- but provide compelling evidence of the malleability of human behavior in contrast to the myth that competition and greed are innate human attributes. Indeed, their practices of usufruct and the inequality of equals are of great relevance to an ecological society. But that 'primal' or prehistoric peoples 'revered' nonhuman nature is at best specious and at worst completely disingenuous. In the absence of 'nonnatural' environments such as villages, towns, and cities, the very notion of 'Nature' as distinguished from habitat had yet to be conceptualized -- a truly alienating experience, in Zerzan's view. Nor is it likely that our remote ancestors viewed the natural world in a manner any less instrumental than did people in historical cultures. With due regard for their own material interests -- their survival and well-being -- prehistoric peoples seem to have hunted down as much game as they could, and if they imaginatively peopled the animal world with anthropomorphic attributes, as they surely did, it would have been to communicate with it with an end toward manipulating it, not simply toward revering it. Thus, with very instrumental ends in mind, they conjured 'talking' animals, animal 'tribes' (often patterned on their own social structures), and responsive animal 'spirits.' Understandably, given their limited knowledge, they believed in the reality of dreams, where humans might fly and animals might talk -- in an inexplicable, often frightening dream world that they took for reality. To control game animals, to use a habitat for survival purposes, to deal with the vicissitudes of weather and the like, prehistoric peoples had to personify these phenomena and 'talk' to them, whether directly, ritualistically, or metaphorically. In fact, prehistoric peoples seem to have intervened into their environment as resolutely as they could. As soon as Homo erectus or later human species learned to use fire, for example, they seem to have put it to work burning off forests, probably stampeding game animals over cliffs or into natural enclosures where they could be easily slaughtered. The 'reverence for life' of prehistoric peoples thus reflected a highly pragmatic concern for enhancing and controlling the food supply, not a love for animals, forests, mountains (which they may very well have feared as the lofty home of deities both demonic and benign). [20] Nor does the 'love of nature' that Bradford attributes to 'primal society' accurately depict foraging peoples today, who often deal rather harshly with work and game animals; the Ituri forest Pygmies, for example, tormented ensnared game quite sadistically, and Eskimos commonly maltreated their huskies. [21] As for Native Americans before European contact, they vastly altered much of the continent by using fire to clear lands for horticulture and for better visibility in hunting, to the extent that the 'paradise' encountered by Europeans was 'clearly humanized.' [22]

#### (\_\_) Alt is self-defeating – guerilla warfare style criticism doesn’t bring political rights

Murray Bookchin, Political and Social Philosopher, 1995 (http://lamiae.meccahosting.com/~a0004f7f/StudiesInAnti-Capitalism/Documents\_TWO\_files/SocialAnarchismOrLifestyleAnarchism.pdf)

Consciously or not, many lifestyle anarchists articulate Michel Foucault's approach of 'personal insurrection' rather than social revolution, premised as it is on an ambiguous and cosmic critique of power as such rather than on a demand for the institutionalized empowerment of the oppressed in popular assemblies, councils, and/or confederations. To the extent that this trend rules out the real possibility of social revolution -- either as an 'impossibility' or as an 'imaginary' -- it vitiates socialistic or communistic anarchism in a fundamental sense. Indeed, Foucault fosters a perspective that 'resistance is never in a position of exteriority in relation to power. . . . Hence there is no single [read: universal] locus of great Refusal, no soul of revolt, source of all rebellions, or pure law of the revolutionary.' Caught as we all are in the ubiquitous embrace of a power so cosmic that, Foucault's overstatements and equivocations aside, resistance becomes entirely polymorphous, we drift futilely between the 'solitary' and the 'rampant.'[5] His meandering ideas come down to the notion that resistance must necessarily be a guerrilla war that is always present -- and that is inevitably defeated.

#### Environmental destruction is not a product of civilization or western culture

Penn 03 (Dustin, Vienna Quarterly Review of Biology, “The Evolutionary Roots of our Environmental problems: toward a Darwinian ecology” 78:3, Septebmer, Ebsco)

THE ECOLOGICAL NOBLE SAVAGE HYPOTHESIS We have never quite outgrown the idea that, somewhere, there are people living in perfect harmony with nature and one another, and that we might do the same were it notfor the corrupting influences of Western culture (Konner 1990). When attempting to explain why humans are ecologically destructive, environmental scholars have long attributed the problem to "Western" culture, especially the anthropocentric and scientific worldviews (White 1967). Subsequently, many argue that addressing our ecological problems requires a rejection of the materialism of science, and an embrace of the animistic and spiritual beliefs of non-Western religions and traditional cultures. Aboriginal peoples, such as Native American Indians, have been represented as the major role model for the modern environmental movement because they are widely thought to have lived in harmony with nature before Western contact. Environmentalists often quote a famous speech by Chief Seattle of the Susquamish tribe who reportedly stated that "Every part of this earth is sacred to my people . . the earth does not belong to man, man belongs to the earth" (Gore 1992:259). Just as Jean-Jacques Rousseau thought that people in traditional cultures live as "noble savages," environmentalists often assume that humans lived in harmony with nature as "ecological noble savages" until they became corrupted by Western culture (Redford 1991). The idea that our modern environmental problems are due to Western science and culture is central to modern environmental movements and philosophies such as Deep Ecology (Devall and Sessions 1985; Sessions 1995) and ecofeminism (Merchant 1980). Evolutionary **researchers have been uncovering a very different picture** of the conservation behavior in traditional and other non- Western cultures (Smith and Wishnie 2000). Increasing evidence indicates that pre- Columbian American Indians and other traditional societies are **not** the conservationists often assumed (Edgerton 1992; Ridley 1996; Krech 1999). The low ecological impact of people in traditional cultures does not appear to be due to conservation practices per se, but simply their low population densities and inefficient technologies (Hames 1987; Alvard 1993, 1995; Kay 1994; Stearman 1994; Vickers 1994; Low 1996a; Alvard 1998; Miller et al. 1999; Ruttan and Borgerhoff Mulder 1999). Among the Piro Indians in Ecuador, hunters do not pay the opportunity costs of passing up prey for conservation; instead their hunting behavior follows optimal foraging principles (Alvard 1993, 1995, 1999). Nor is there is any association between societies that hold beliefs about the sacredness of nature and having a low ecological impact (Low 1996a). It turns out that the widely quoted speech by Chief Seattle is just a myth, a story created for television, that has been perpetuated by uncritical and wishful thinking environmentalists (Ridley 1996). Furthermore, increasing evidence indicates that our species has a long history of causing ecological destruction (Diamond 1988, 1992, 1995; Redman 1999). As humans have moved around the planet, they have caused massive extinctions in various ecosystems. For example, the megafaunal extinction in the Americas during the Pleistocene (in which 57 species of large mammals went extinct, including mammoths and mastodons, in a sudden ecological collapse) is usually attributed to climate change. Alfred Russell Wallace suggested otherwise: "I am convinced that the rapidity of... the extinction of so many large Mammalia is actually due to man's agency" (cited in Leakey and Lewin 1995:172). Much evidence now indicates that the Pleistocene extinctions in North America correspond to the time of arrival of human migrations from Asia (Martin 1978; Martin and Klein 1984). This major extinction event does not appear to have been due to climate change; other places experienced climate change at this time, but did not have similar extinctions. Instead, it appears that it was due to the vulnerability of North American fauna to a newly introduced and highly effective predator, Homo sapiens (Alroy 2001). This "Pleistocene overkill" hypothesis is somewhat controversial; it is still debated whether the Pleistocene extinctions in North American were due to human hunting alone, climate change, or some combination of these factors. Yet, the major extinctions that occurred on many South Pacific islands (Steadman and Olson 1985; Steadman et al. 2002), such as the disappearance of elephant birds in New Zealand, cannot be attributed to climate change and they coincide precisely with the arrival of humans who hunted them extensively (Anderson 1989; Diamond 2000; Holdaway andJacomb 2000; Roberts et al. 2001). Once humans began to settle down and organize into larger and more complex societies, entire civilizations appear to have collapsed due to the overexploitation of their resource base (Diamond 1988; Ponting 1992). After arriving to Easter Island, the Polynesians turned a lush forested island into a treeless landscape, exhausted their resources, and their population and society collapsed (Diamond 1995). The sudden disappearance of the Anasazi Indians in North America, the Maya in Central America, and other non-Western civilizations may have been due to an ecological collapse (Culbert 1973; Deevey et al. 1979; Diamond 1992; Redman 1999; Stuart 2000). The precise causes for the demise of the Maya and Anasazi and other ancient civilizations are still unclear and controversial. Their downfall is still usually attributed to internal social turmoil or hostile invading groups (except Easter Island), though such events may have just provided the final coup de grace after resource depletion already undermined economic and political stability, as we are seeing today in many societies (Homer-Dixon 1999). Thus, humans did not live in harmony with nature until the spread of "Western" culture, and these findings about our species' actual conservation behavior offer several extremely important implications. First, they indicate that environmentalists are not merely overreacting "alarmists"; we have very good reasons to be concerned about our species' potential for causing ecological destruction. Second, they indicate that achieving ecological sustainability may be more difficult than is often assumed and that we cannot simply abandon 'Western" secularism and science for mysticism. Third, they show that we must be wary of romantic myths and wishful thinking about human nature. Becoming more critical, though, does not imply that we should not be open to new possibilities or try to learn from other cultures. Many societies have successfully managed their resources (Smith and Wishnie 2000), so there is room for optimism. What is needed is more research into how people in various societies have successfully managed their natural resources, and to determine how to apply this knowledge toward designing adaptive strategies for dealing with ecological problems (e.g., Ostrom et al. 1999).

#### Growth is sustainable – innovation.

Kurzweil 08 (Ray, Scientist, Inventor and Entrepreneur inducted in the National Inventors Hall of Fame and winner of the 1999 National Medal of Technology, Washington Post, “Making the World A Billion Times Better”, 4-13, http://www.washingtonpost.com/wp-dyn/content/article/2008/04/11/AR2008041103326.html)

MIT was so advanced in 1965 (the year I entered as a freshman) that it actually had a computer. Housed in its own building, it cost $11 million (in today's dollars) and was shared by all students and faculty. Four decades later, the computer in your cellphone is a million times smaller, a million times less expensive and a thousand times more powerful. That's a billion-fold increase in the amount of computation you can buy per dollar. Yet as powerful as information technology is today, we will make another billion-fold increase in capability (for the same cost) over the next 25 years. That's because information technology builds on itself -- we are continually using the latest tools to create the next so they grow in capability at an exponential rate. This doesn't just mean snazzier cellphones. It means that change will rock every aspect of our world. The exponential growth in computing speed will unlock a solution to global warming, unmask the secret to longer life and solve myriad other worldly conundrums. This exponential progress in the power of information technology goes back more than a century to the data-processing equipment used in the 1890 census, the first U.S. census to be automated. It has been a smooth -- and highly predictable -- phenomenon despite all the vagaries of history through that period, including two world wars, the Cold War and the Great Depression. I say highly predictable because, thanks to its exponential power, only technology possesses the scale to address the major challenges -- such as energy and the environment, disease and poverty -- confronting society. That, at least, is the major conclusion of a panel, organized by the National Science Foundation and the National Academy of Engineering, on which I recently participated. Take energy. Today, 70 percent of it comes from fossil fuels, a 19th-century technology. But if we could capture just one ten-thousandth of the sunlight that falls on Earth, we could meet 100 percent of the world's energy needs using this renewable and environmentally friendly source. We can't do that now because solar panels rely on old technology, making them expensive, inefficient, heavy and hard to install. But a new generation of panels based on nanotechnology (which manipulates matter at the level of molecules) is starting to overcome these obstacles. The tipping point at which energy from solar panels will actually be less expensive than fossil fuels is only a few years away. The power we are generating from solar is doubling every two years; at that rate, it will be able to meet all our energy needs within 20 years. Nanotechnology itself is an information technology and therefore subject to what I call the "law of accelerating returns," a continual doubling of capability about every year. Venture capital groups and high-tech companies are investing billions of dollars in these new renewable energy technologies. I'm confident that the day is close at hand when we will be able to obtain energy from sunlight using nano-engineered solar panels and store it for use on cloudy days in nano-engineered fuel cells for less than it costs to use environmentally damaging fossil fuels. It's important to understand that exponentials seem slow at first. In the mid-1990s, halfway through the Human Genome Project to identify all the genes in human DNA, researchers had succeeded in collecting only 1 percent of the human genome. But the amount of genetic data was doubling every year, and that is actually right on schedule for an exponential progression. The project was slated to take 15 years, and if you double 1 percent seven more times you surpass 100 percent. In fact, the project was finished two years early. This helps explain why people underestimate what is technologically feasible over long periods of time -- they think linearly while the actual course of progress is exponential. We see the same progression with other biological technologies as well. Until just recently, medicine -- like energy -- was not an information technology. This is now changing as scientists begin to understand how biology works as a set of information processes. The approximately 23,000 genes in our cells are basically software programs, and we are making exponential gains in modeling and simulating the information processes that cracking the genome code has unlocked. We also have new tools, likewise just a few years old, that allow us to actually reprogram our biology in the same way that we reprogram our computers. For example, when the fat insulin receptor gene was turned off in mice, they were able to eat ravenously yet remain slim and obtain the health benefits of being slim. They didn't get heart disease or diabetes and lived 20 percent longer. There are now more than a thousand drugs in the pipeline to turn off the genes that promote obesity, heart disease, cancer and other diseases. We can also turn enzymes off and on, and add genes to the body. I'm an adviser to a company that removes lung cells, adds a new gene, reproduces the gene-enhanced cell a million-fold and then injects it back into the body where it returns to the lungs. This has cured a fatal disease, pulmonary hypertension, in animals and is now undergoing human trials. The important point is this: Now that we can model, simulate and reprogram biology just like we can a computer, it will be subject to the law of accelerating returns, a doubling of capability in less than a year. These technologies will be more than a thousand times more capable in a decade, more than a million times more capable in two decades. We are now adding three months every year to human life expectancy, but given the exponential growth of our ability to reprogram biology, this will soon go into high gear. According to my models, 15 years from now we'll be adding more than a year each year to our remaining life expectancy. This is not a guarantee of living forever, but it does mean that the sands of time will start pouring in rather than only pouring out. What's more, this exponential progression of information technology will affect our prosperity as well. The World Bank has reported, for example, that poverty in Asia has been cut in half over the past decade due to information technologies and that at current rates it will be cut by another 90 percent over the next decade. That phenomenon will spread around the globe. Clearly, the transformation of our 21st-century world is under way, and information technology, in all its forms, is helping the future look brighter exponentially.

#### Alt fails – try or die for the aff.

Barry W. Brook, Sir Hubert Wilkins Chair of Climate Change at the University of Adelaide, November 2011 (http://ceda.com.au/media/153125/nuclearfinal8nov.pdf)

Improved efficiency in the way we use energy offers a partial fix, at least in the short term. In the broader context, to imagine that the global human enterprise will somehow manage to get by with less just doesn’t stack up when faced with the reality of a fast developing, energy-starved world. Citizens in Western democracies are simply not going to vote for governments dedicated to lower growth and some concomitant critique of consumerism, and nor is an authoritarian regime such as in China going to risk social unrest, probably of a profound order, by any embrace of a low growth economic strategy. As such, reality is demanding, and we must carefully scrutinise the case put by those who believe that a wholesale reduction in energy use is the answer. Critics do not seem to understand – or refuse to acknowledge – the basis of modern economics and the investment culture. Some dream of shifts in the West and the East away from consumerism. There is a quasi-spiritualism which underpins such views. Yet at a time of crisis, societies must be ruthlessly practical in solving their core problems or risk collapse. First, there is an economic opportunity cost involved in reducing our energy use

(beyond wastage, which clearly makes sense to avoid), given that economic growth, affluence and health are all underpinned by technological choices and the availability of reliable, cost-effective services.9 Second, most people will object vociferously to measures that propose to, or are even perceived to lead to, a decline in their standard of living. We need to work with this reality, and seek, as an environmentally aware society, to deliver these aspirations in a sustainable way.

Perm do the plan and refuse the blueprints and the traps of civilized logic in the movement model and its attendant hierarchy – instead we must realize chaos rules everything