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#### Financialization of energy production is a neoliberal tool to subvert communal agency—fuels inequality and unsustainable practices

**Hildyard et al 2012** – \*founder and Director of The Corner House, a U.K. research and advocacy group focusing on human rights, the environment, and development, co-editor of The Ecologist, \*\*co-founder of the Durban Group for Climate Justice (February, Nicholas Hildyard, Larry Lohmann and Sarah Sexton, The Corner House, “Energy Security For What? For Whom?”, http://www.thecornerhouse.org.uk/sites/thecornerhouse.org.uk/files/Energy%20Security%20For%20Whom%20For%20What.pdf, WEA)

The neoliberal market-driven approach to energy policy in Europe and¶ North America that is actively promoted throughout the world by the¶ International Monetary Fund and the World Bank and through bilateral¶ investment treaties and the Energy Charter Treaty is barely 30 years¶ old. Prior to the 1980s, energy – oil, gas, coal and electricity – was¶ largely provided either by state monopolies at prices determined by the¶ state with investment centrally planned by government bureaucracies,¶ or by private monopolies subject to government oversight and regulation to protect users from excessive charges. Markets, in which for-profit companies competed with each to generate, distribute and supply¶ “energy”, were considered “hopelessly inadequate in providing appropriate energy supplies,”¶ 3¶ considered to be “the lifeblood of the world¶ economy.”4¶ “Moving to the market,” however, was proposed as a way of ensuring¶ investment in energy infrastructure – power plants, transmission systems and storage capacity – that would not only guarantee supplies to¶ consumers at cheaper prices but would also direct investment to the¶ most cost-effective means of reducing carbon emissions.¶ 5¶ But markets have singularly failed to deliver on these promises. Directly opposed to forms of social and economic organisation that seek¶ to guarantee the shared right of all to survival, market-based energy¶ policies have led to the exclusion of those who cannot afford to pay for¶ the energy they require to meet their basic needs. The **financialisation**¶ **of “energy**”– where the production and distribution of oil, gas and electricity is mediated and shaped not just by markets in general but by¶ financial markets in particular,¶ 6¶ and where capital is accumulated primarily through financial speculation rather than production – is also¶ **jeopardising investment in the infrastructure that might enable a just**¶ **transition** to a sustainable and equitable climatic future. Investment is¶ diverted into trading on money or the products of money, often creating¶ energy shortages in the process through the speculative “gaming” of¶ energy markets. Just as energy is now “saturated with the language of¶ security”,¶ 7¶ so, too, it is “infused by the logic of finance”,¶ 8¶ even though¶ financialisation is conspicuously absent from energy security narratives.¶ Market-led policies **marginalise the role of communities** and ordinary¶ people in decision-making: instead “choices” about future energy technologies and use are left to those who have economic and political¶ power within the range of markets that affect energy. The input of¶ consumers is reduced to the (limited) decisions they can make within¶ energy retail markets based on price signals alone: the cost of electricity or gas. Debates over **how society might be differently organised** to¶ generate and use (less) “energy” in different ways are entirely sidelined,¶ except where they might provide opportunities to make money.¶ Meanwhile, efforts to address climate change through carbon trading¶ and other market mechanisms are fatally delaying the action that is¶ necessary to prevent runaway global climatic instability, whilst at the¶ same time creating new sources of conflict and insecurity.

#### The impact is extinction—focus on production and technology in the neoliberal frame generates crises and precludes other orientations

**Holleman 2012** – assistant professor of sociology at Amherst, PhD in sociology from the University of Oregon (June, Hannah, sociology dissertation, University of Oregon, “Energy justice and foundations for a sustainable sociology of energy”, https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/12419/Holleman\_oregon\_0171A\_10410.pdf?sequence=1, WEA)

As Marilyn Waring noted twenty years ago, under this system, when there is an ¶ environmental catastrophe, like the Exxon Valdez oil spill in Alaska, or the current BP oil ¶ spill in the Gulf, companies make an enormous profit cleaning up, or at least professing ¶ to do so. GDP goes up. If someone is sick, if they die a long, drawn-out death from ¶ cancer, there is profit to be made. There is no money to be made in human and ecological ¶ health and well-being. If communities grow their own food, the global food market ¶ significantly decreases; if people walk rather than drive, the oil and car companies don’t ¶ make money. If education is free, who benefits? Maybe most people, and the society at ¶ large, maybe even the environment, but not necessarily the shareholders. Therefore, it is ¶ much more economically efficient to let the market shape education. Today students take ¶ out larger and larger loans to buy more expensive books, to get less education engendered ¶ by fewer teachers. This is capitalist efficiency. The surplus is efficiently transferred from ¶ one segment of the population to another, those at the top. The same goes for letting the ¶ market shape energy policy. Those arguing today for market intervention in the climate ¶ crisis often fail to mention that it is absolutely already the market shaping energy policy. ¶ This is precisely the problem. It is very efficient for the market to extract oil at bargain ¶ prices from countries without militaries to stop them. It is very efficient, in terms of ¶ profit, to have the most vulnerable in society pay the costs of energy production, and to ¶ keep polluting, all the while terrifying people that new energy developments might be ¶ their only chance of economic survival. Nevermind where the real money goes and what ¶ happens with the boom goes bust.

The current version of capitalist ideology, which absorbs energy scholars (and ¶ even environmental socialists) often unwittingly, was consciously shaped to co-opt the ¶ language of social movements seeking freedom from the yolk of capitalism and ¶ imperialism. It is no surprise that the market would co-opt green rhetoric today. ¶ Economists having the greatest ideological influence on political debates and social ¶ science today, the architects of neoliberal ideology, have sought to re-write the history of ¶ capitalist development as “the constitution of liberty,” and the basis of free society ¶ (Hayek 1960; Friedman 1962; Van Horn, Mirowski, and Stapleford, eds. 2011). There ¶ can be no acknowledgement of slavery, racism, sexism, or ecological destruction among ¶ other issues, because all of these undermine the basic thesis neoliberal writers actively ¶ promote as political ideology. To make their argument, these writers must present ¶ capitalism as raising all boats, color-blind, gender-neutral, and free of class coercion, the ¶ globalization of which results in a “flat,” happy world, even if it is hot (Friedman 2005, ¶ 2008). Unfortunately, these ideas dominate the political sphere, and contemporary ¶ notions of organizational, community, and national development. In academia, many ¶ “theorists celebrate the alleged leveling of social differences owing to globalization”¶ (Pellow 2007, 41). The blinders imposed by this view continue to infect energy studies¶ despite the work of critical energy scholars.

Spreading capitalism thus becomes the solution for poverty associated with ¶ inequalities caused by oppression based on race, class, gender, and position in the world ¶ system, as well as the solution to environmental and energy crises. This is the basic ¶ modernization thesis. The Ecological Modernization Reader (Mol, Sonnenfeld, and ¶ Spaargaren 2009) presents these systematized views regarding the environmental crisis, ¶ which are increasingly influential in environmental sociology. York and Rosa (2003) and ¶ Foster (2012) have pointed out the empirical, theoretical, and philosophical roots of, and ¶ problems associated with this perspective as a basis for understanding ecological and ¶ social crises and solutions. But, we can expect this view to persist as long as social ¶ relations remain intact because the logic of modernization is seductive precisely because ¶ it is the logic of capitalism (Foster 1999b, 2002, 2009, 2012). The processes of ¶ capitalism, including its ideological developments, are the “background conditions” in ¶ which those integrated into the market economy live, as fish swim in water, they are the ¶ “**social gravity**” we might naturally feel is right, but don’t necessarily see, as much a part ¶ of our lives as the air we breathe (York and Clark 2006).

In contrast to the modernization thesis, environmental justice scholars, among ¶ other critical theorists and activists have sought to expose the mythological basis of ¶ neoliberalism and transcend the system. The work of environmental justice scholars, ¶ feminist ecologists, and ecological rift theorists, marshaling the empirical evidence, ¶ represent powerful critiques of the modernization thesis. Taken together with the insights ¶ in existing critical work on energy, they provide an alternative approach to energy that¶ **belies the notion that “there is no alternative.”** They share a common commitment, as ¶ social scientists and activists, to reality. Part of this reality is that “actual class and racial ¶ inequalities around the global and between North and South have only worsened in the ¶ past half-century—the same period during which the late modern state of capitalism took ¶ hold” (Pellow 2007, 41). Despite views that we live in a post-racial society, (or one ¶ where “men are finished and women are taking over” [Sohn 2011]), in fact economic ¶ globalization has “seriously undermined the gains of the civil rights and labor movement ¶ and the general antiracist struggle in the United States and undercut the global benefits of ¶ the anticolonial struggles occurring throughout the global South” (Pellow 2007, 43). ¶ Moreover, economic globalization and the intensified spread of ecological destruction ¶ “are intimately linked because the TNCs [transnational corporations] themselves were¶ the ones creating and pushing both globalization and toxins on the world markets, ¶ facilitating greater control over nations, communities, human bodies, and the natural ¶ world itself”(43).

Today, neoliberal mythology has severely hindered the development of a wider ¶ environmental justice consciousness in the broader public, and amongst activists and ¶ academics. In energy studies this view is especially pronounced in the focus on ¶ technology, carbon markets, voluntary certification schemes, and alternative energies that ¶ basically allow business to continue as usual (Foster 2002, 9-25; Rogers 2010; Holleman ¶ 2012). The critical literature emerging from what I call an energy justice perspective in ¶ ecological rift theory, systems ecology, feminist and critical human ecology, and ¶ environmental justice scholarship has drawn out the social and ecological crises of the ¶ current energy regime. This is in contrast to too many well-intentioned scholars and ¶ activists who buy into the main tenets of the modernization thesis, and thus are reluctant ¶ to break with capitalism as a system, or worse, they promote it, ignoring or ignorant of ¶ the enormous costs. This has led to the view that our task as environmentalists is getting ¶ economics to “internalize the externalities,” to bring under the pricing system the work of ¶ natural systems and human services (labor). For energy this means carbon markets and ¶ trade in other forms of pollution and raising energy prices. While it is clear that as long as ¶ we have this system, goals should include wealth redistribution and businesses ¶ shouldering the costs of their polluting practices, long-term, internalizing more of the ¶ world in the market system is a total death strategy. The logic of the market is clear. An ¶ energy justice movement, with the intention of healing the ecological rift and ¶ transcending social injustice, on the other hand has as its base the goal of “externalizing ¶ the internalities.” This is an ecological and social imperative.

Understanding the nature of the current system, Daniel Yergin’s worse-than-nothing approach to energy is the logical response of capital. Carbon markets and the ¶ new biotech boom also make sense. If the point is accumulation, sources of profit must ¶ be found at every turn and crises represent especially ripe opportunities (Klein 2007). The ¶ problem today is not capitalism’s lack of response to the climate crisis, capital was never ¶ developed as a system geared toward ecological reproduction or meeting human needs. It ¶ is a system geared toward profit at all cost and can have no rational response. The ¶ problem is that capitalism organizes so many of our productive activities in the first ¶ place. The sooner this is recognized, **the sooner we can start thinking of real alternatives**, ¶ and understand ourselves as subjects, not merely objects of the system, as protagonists of ¶ our own future. We can move beyond playing the passive consumers of the next product¶ capitalism has on offer, green or otherwise, packaged as a solution to energy crises. ¶ Examples like the carbon market schemes, or Daniel Yergin’s view of what constitutes ¶ energy revolution, make clear “that **there’s no way we can just subcontract** our ¶ **environmental conscience to** the **new** breed of **green marketers**” (McKibben 2010).

Energy and social inequality, the challenges of our generation

The social and ecological costs of our energy regime today are clear, though the ¶ ways these are both the result of and exacerbate social inequality and oppression are often ¶ misunderstood or ignored. While the future is unwritten, projections, if business ¶ continues as usual, indicate environmental and social catastrophe with much of the ¶ damage irreversible. Without significant social change, we should prepare for, among ¶ other depredations, increased warfare to secure energy resources to meet increased ¶ demand. The most recent British Ministry of Defence Strategic Trends report suggests ¶ that nations will increasingly use energy security “to challenge conventional ¶ interpretations on the legality of the use of force” (108). Environmentally and socially ¶ destructive energy sectors are projected to grow the next thirty years, such as nuclear ¶ energy and biofuel, while expected fossil fuel demand also goes only one way, up: ¶ Global Energy use has approximately doubled over the last ¶ 30 years and, by 2040, demand is likely to grow by more ¶ than half again. Despite concerns over climate change, ¶ demand is likely to remain positively correlated to ¶ economic growth with fossil fuels, meeting more than 80% ¶ of this increase. Urban areas will be responsible for over ¶ 75% of total demand. (Strategic Trends, 106) ¶ Even a U.S. government official has recognized publicly that “our patterns of energy use ¶ create geopolitical instability. The ways we use energy are disrupting the climate system ¶ and threaten terrifying disruptions in decades to come” (Sandalow 2009).

These realities only partially illustrate energy’s extensive contribution to what K. ¶ William Kapp (1950) referred to as capitalism’s systemic “unpaid costs.” As Anderson ¶ (1976) put it: “the growth society operates as if it had tunnel vision and nearsightedness; ¶ the accumulation of capital is pursued without regard for the side-effects or for longrange consequences, leaving to nature and the larger community these uncalculated ¶ costs” (140). Prefiguring contemporary discussions and movement framing, Anderson ¶ referred to these accumulated unpaid costs, or externalities as “the ecological debt,” the ¶ result of the exploitation of both nature and humans for the sake of economic growth at ¶ all costs (142-43), undermining the natural and social conditions of production.

As indicated previously, with energy demand expected only to increase as the ¶ economy expands, the “unpaid costs” associated with its extraction and use will continue ¶ to accumulate, but on a scale heretofore unseen. The science is clear that if we do not ¶ severely curtail energy use, we will cross critical thresholds in the biosphere’s ability to ¶ recycle waste and regulate the earth’s temperature. The consequences of crossing such ¶ **planetary boundaries** will be irreversible (Hansen 2009; Solomon, et al. 2009; Cullen ¶ 2010; Foster 2011).

This is a new juncture in humanity’s relation to the rest of nature. However, the ¶ costs of climate change, among other environmental crises generated by energy ¶ production and use, which is driven largely by economic growth, already are visited upon ¶ communities and other social groups in a dramatically unequal way––this we may ¶ understand as a defining feature of energy injustice. This social inequality, indeed, is a ¶ necessary feature of capitalism, making human exploitation and the assault on the ¶ environment possible, and energy injustice inevitable in the current system:

“Environmental deterioration will continue so long as there is a class system, since the ¶ profits of environmental neglect accrue primarily to one class whereas the costs are borne ¶ primarily by another” (Anderson 1976, 139). Scholars studying the ecological and social ¶ rift of capitalism, including those working on environmental racism and feminist ecology, ¶ have expanded the understanding of how these processes are gendered and racialized. ¶ Work on unequal ecological exchange amply has demonstrated that inequality between ¶ nations and regions also increases the burdens of environmental injustice. Studies from ¶ all of these perspectives have drawn out inequalities embedded in our current patterns of ¶ energy decision-making, extraction, use, and waste disposal, documenting energy ¶ injustice through various theoretical lenses.

#### Vote neg to eschew neoliberal frameworks—they’re unsustainable and insulate decisionmaking from deliberation and alternative assumptions needed to solve

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The reduction of ecological valuation through a market mechanism (or various techniques) to a ¶ mere aggregation of individual subjective valuations—which is the main premise of neoliberal ¶ ideology—may be inappropriate for complex and uncertain phenomena ridden with ¶ incommensurabilities and inter- and intra-generational distributional conflicts, such as global ¶ warming, where individual valuations will have clear implications for all living beings. Indeed, ¶ in making decisions with substantial consequences pertaining to our current life as well as our ¶ future (such as the overall growth rate, distributional trajectories, technological path, ¶ consumption habits, risk attitude [say, vis-à-vis nuclear energy]), the market response or the ¶ aggregation of individuals’ valuation through a set of available techniques (e.g., the contingent ¶ valuation) may substantially differ from what could be derived through **collective deliberation** ¶ and negotiation of various stakeholders including the scientific community (see, e.g., ¶ Özkaynak, Adaman and Devine, 2012). This criticism applies not only to neoliberal positions ¶ that favor the current unequal distribution of power but also to the Post-Walrasian one which ¶ although concerned with distributional issues keeps relying on individualist ontologies of ¶ calculative and calculable agency. Indeed, there is a growing theoretical and applied literature ¶ arguing that in incommensurable cases, where all relevant aspects cannot be captured in a single ¶ dimension (such as those derived from monetary cost-benefit analyses), a multi-criteria ¶ methodology would seem better placed, as it will be possible to involve not only economic but ¶ also political, moral, scientific and cultural inputs from a variety of stakeholders (see, e.g., ¶ Martinez-Alier, Munda and O’Neil, 1999; Munda, 2008). The key promise of the multicriteria decision-making tool and other similar participatory and deliberatory dispositifs is that ¶ **rather than finding a “solution”** to a conflictual decision, they shed light on the multifaceted¶ dimensions of the problem at hand and thus facilitate the consensus-building process from ¶ below (see, e.g., Adaman, 2012). In this regard, they constitute a formidable path to be ¶ explored as an alternative to the surreptitiously normative neoliberal governmental dispositifs, ¶ designed by experts from above, under the assumption that all actors are calculative and ¶ calculable.

The current indiscriminate application of neoliberal policies over the entire scope of the social ¶ field has brought about such political, economic, cultural and ecological devastation that any ¶ type of reform suggestion along the line to halt this process is met with much welcoming by ¶ many of us—even if some of them are still **acting as if economic incentives are the only viable** ¶ **policy tool** in town. Consider the case of carbon markets, for example, where the cap is ¶ decided either through a scientific body or through aggregating individuals’ preferences. The ¶ fact of the matter is that, far from addressing the inefficiencies that emanate from opportunistic ¶ and manipulative activities, these mechanisms are vulnerable precisely because they end up¶ soliciting manipulative, predatory, and rent-seeking behavior (**because they are** **designed** to ¶ function **under such behavioral assumptions** in the first place). In other words, these solutions ¶ subject a commons such as global climate into the economic logic of markets and ¶ “performatively” turn it into an object of strategic-calculative logic (MacKenzie, Muniesa and ¶ Siu, 2007; Çalışkan and Callon, 2009; MacKenzie, 2009; Çalışkan and Callon, 2010; see also ¶ Spash, 2011). Consider, furthermore, the case of price-per-bag policies. Laboratory ¶ experiments and anthropological evidence both suggest that charging a price for some activity ¶ that should in fact be treated as a duty or a commitment may well create perverse results (see, ¶ e.g., Campbell, 1998; Bowles and Hwang, 2008). Monetizing the pollution-generating activity ¶ instead of limiting the use of plastic bags (along with an awareness program) may well result in ¶ an increase of the unwanted activity. Similarly, while nationalization is the trend in areas of ¶ natural resource extraction and energy production, many continue to argue for privatization ¶ and private-public partnerships instead. Nevertheless, the problem with the private versus ¶ public dichotomy, given our reading of the contemporary state as an agent of economization, is ¶ precisely that both forms, to the extent that they are informed by the different variants of ¶ neoliberal reason, serve to isolate these critical areas from the deliberations and political ¶ demands of various stakeholders and the general public, **limiting the only channels for** ¶ **communication** available to them to the price (or price-like) mechanisms. However, perhaps ¶ most importantly, neither can be immune towards all sorts of rent-seeking activities that occur ¶ behind the close doors of the technocracy that operates in the area where state shades into ¶ market in the various forms of dispositifs.

Needless to say, economic activities that generate pollution and consume energy are not recent ¶ phenomena that are exclusive to what is now increasingly being called the neoliberal era. If ¶ anything, postwar Keynesian developmentalism was possible precisely because of the ¶ availability of cheap oil, and is responsible for an enormous amount of environmental pollution ¶ and ecological degradation (Mitchell, 2011). In this sense, it would be wrong to present ¶ neoliberal as being the only responsible mode of governmentality for the dual crises of climate ¶ change and natural resource depletion. Yet, this does not change the fact that the neoliberal ¶ reason (in its free-market and mechanism-design variations) is pushing its agenda in an era ¶ where both of these crises are reaching catastrophic levels, and it is highly questionable whether ¶ neoliberal methods of handling the environmental pollution and the extraction crisis will be¶ capable of addressing long-term concerns.

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#### Financial incentives are committed public funds directly tied to production

Webb, 93 – lecturer in the Faculty of Law at the University of Ottawa (Kernaghan, “Thumbs, Fingers, and Pushing on String: Legal Accountability in the Use of Federal Financial Incentives”, 31 Alta. L. Rev. 501 (1993) Hein Online)

In this paper, "financial incentives" are taken to mean disbursements 18 of public funds or contingent commitments to individuals and organizations, intended to encourage, support or induce certain behaviours in accordance with express public policy objectives. They take the form of grants, contributions, repayable contributions, loans, loan guarantees and insurance, subsidies, procurement contracts and tax expenditures.19 Needless to say, the ability of government to achieve desired behaviour may vary with the type of incentive in use: up-front disbursements of funds (such as with contributions and procurement contracts) may put government in a better position to dictate the terms upon which assistance is provided than contingent disbursements such as loan guarantees and insurance. In some cases, the incentive aspects of the funding come from the conditions attached to use of the monies.20 In others, the mere existence of a program providing financial assistance for a particular activity (eg. low interest loans for a nuclear power plant, or a pulp mill) may be taken as government approval of that activity, and in that sense, an incentive to encourage that type of activity has been created.21 Given the wide variety of incentive types, it will not be possible in a paper of this length to provide anything more than a cursory discussion of some of the main incentives used.22 And, needless to say, the comments made herein concerning accountability apply to differing degrees depending upon the type of incentive under consideration.

By limiting the definition of financial incentives to initiatives where *public* *funds are* either disbursed or *contingently committed*, a large number of regulatory programs with incentive ***effects*** which exist, but in which no money is forthcoming,23 are excluded from direct examination in this paper. Such programs might be referred to as *indirect* incentives. Through elimination of indirect incentives from the scope of discussion, thedefinition of the incentive instrument becomes both more manageable and more particular. Nevertheless, it is possible that much of the approach taken here may be usefully applied to these types of indirect incentives as well.24 Also excluded from discussion here are social assistance programs such as welfare and ad hoc industry bailout initiatives because such programs are not designed primarily to *encourage* behaviours in furtherance of specific public policy objectives. In effect, these programs are assistance, but they are not incentives.

#### That makes the plan a nonfinancial incentive

**Shapiro**, associate – Energy, Environment & Public Utilities Practice Group @ Cozen O'Connor, publisher – Green Building Law Blog, **2011**

(Shari, “Code Green: Is 'Greening' the Building Code the Best Approach to Create a Sustainable Built Environment?” Planning & Environmental Law 63:6, p. 3-12)

The explosion of state and local green building regulations has been extraordinary and has led to interesting regulatory experimentation. Many state and local governments begin by mandating green building practices for public buildings. Some local governments have expanded that mandate to require green building practices for both public and private development, often for new construction over a certain square footage. Others have sought to encourage green building practices through financial incentives. Still others have used non-financial incentives like expedited permitting or increased density to encourage the development of green buildings.

Mandatory green building requirements work very much like traditional "command and control" environmental regulations, the Clean Water Act and the Clean Air Act being preeminent examples. Direct regulation may mandate specific green building practices or the achievement of a green building standard such as the USGBCs Leadership in Energy and Environmental Design (LEED) standard.3 Green building codes such as CALGreen, discussed in detail below, fall into this regulatory category.

Financial incentives have taken the form of direct grants from government entities,4 tax incentives, and rebates.5 Other forms of financial incentives for green buildings are rebates of the typical government-related costs of building, such as application fees.6

Local governments are also experimenting with nonfinancial incentives for green building practices. These incentives are often attractive to municipalities because they do not deplete public finances directly and are therefore easier to get passed in difficult financial times or with teluctant constituencies.7 Examples of nonfinancial incentives include increased floor-to-area ratios for green buildings8 and expedited permitting processes.

#### Vote neg:

#### 1. Limits – makes the topic bidirectional – allows imposition of requirements on one energy source in order to incentivize another – explodes research because the list of negative incentives is massive

#### 2. Ground – predictable negative offense is limited to direct incentives for each energy source – allowing negative incentives arbitrarily give the aff unpredictable spin on core generics like politics and energy trade off disads.

### DA

#### Hagel getting confirmed now

Aaron Blake (writer for the Washington Post) January 15, 2013 “Hagel's path to confirmation clears, but hearings loom” ProQuest¶

Sen. Charles **Schumer's** (D-N.Y.) **decision to support** Chuck **Hagel's** nomination for Secretary of Defense **means the job is** now **Hagel's** for the taking -- provided he can avoid a major screw-up at his confirmation hearings.¶ Schumer's annou ncement Tuesday that he intended to support Hagel's nomination -- after some initial hesitation -- signals that Senate Democrats will likely be united in support of President Obama's nominee to head the Pentagon.¶ Schumer, as we've written before, was the most important Democrat in this whole process, given his pro-Israel record and his stature as a party leader. And his support means Hagel has cleared a major hurdle, with other Democrats now likely to feel more comfortable supporting him.¶ Republicans acknowledged after Schumer's announcement that they would have to be almost completely united in their opposition if they want to take Hagel down.¶ But that becomes much harder without some Democrats joining in opposition.¶ Democrats have 55 votes in the Senate, which means that with a unified caucus they would need to pick off just five Republicans to overcome a filibuster. That seems pretty doable even in a chamber in which Hagel has alienated many of his former GOP colleagues.¶ From here, all of this depends very much on how the confirmation hearings go. Even Schumer seemed to temper his support for Hagel a little by saying he is "currently prepared" to vote for him.¶ "While the Senate confirmation process must be allowed to run its course, it is my hope that Senator Hagel's thorough explanations will remove any lingering controversy regarding his nomination," Schumer said.¶ We don't mean to say that Schumer isn't on-board, just that hearings matter and Hagel will need to be on his game. And other Democrats, including Sens. Richard Blumenthal (D-Conn.) and Kirsten Gillibrand (D-N.Y.), have expressed significant concerns about Hagel, so he hasn't locked down all Democrats just yet.¶ But it seems only a matter of time before these Democrats join Schumer in support, and at this point, the GOP base isn't overwhelmingly anti-Hagel. About the only thing that could change either of those is a major hiccup at his confirmation hearings.

#### Costs pc and Obama will push

Restuccia 3/21/12 (Andrew Restuccia Reporter at Politico, “Obama: 'We will not walk away' from clean-energy agenda,” <http://thehill.com/blogs/e2-wire/e2-wire/217393-obama-we-will-not-walk-away-from-clean-energy>)

“You’d think that everybody would be supportive of solar power,” Obama said during a speech at a solar plant in Boulder City, Nev. “That’s what you’d think. And yet, if some politicians had their way, there won’t be any more public investment in renewable energy.” Obama’s speech, part of a four-state energy tour, signals that the White House continues to believe that investing in clean energy is a winning political issue, despite the GOP’s attacks on Solyndra, the now-defunct California solar panel maker that received a $535 million Obama administration loan guarantee in 2009. “As long as I’m president, we will not walk away from the promise of clean energy,” Obama said. The president spoke Wednesday afternoon at the Copper Mountain Solar 1 Facility, which the White House said was the largest photovoltaic solar power plant in the country. While Obama didn’t mention Solyndra in the speech, he acknowledged that some investments “won’t pan out.” But he stressed that long-term investment in the renewable energy industry will boost the economy and create thousands of jobs. “When it comes to new technologies, the pay-offs aren’t always going to start right away,” Obama said. “Sometimes you need a jumpstart to make it happen.” The president sought to portray Republicans as out of touch and clinging to old notions. “If these guys were around when Columbus set sail, they’d be charter members of the Flat Earth Society,” Obama said, reprising a line from an earlier speech. “One member of Congress who shall remain unnamed called these jobs ‘phony,’ ” he said. Obama praised Tuesday’s decision by the Commerce Department to impose modest tariffs on imports of Chinese solar panels into the United States. “China wasn’t playing fair when it comes to solar power,” he said. “When the playing field is level, then American workers and American businesses always win. That’s why we’ve got to make sure that our laws are properly enforced.” Republicans have been working for months to punish Obama politically for the administration’s clean-energy investments, focusing in on the Solyndra failure. The GOP alleges that officials missed red flags that hinted at the Solyndra’s financial problems and that the administration approved the loan to please Obama’s campaign donors.

#### PC key

Michael Falcone (writer for ABC News) 1/7, 2013 “Cabinet Shakeup: No Such Thing As A ‘Slam Dunk’ (The Note)” http://abcnews.go.com/blogs/politics/2013/01/cabinet-shakeup-no-such-thing-as-a-slam-dunk-the-note/

But as ABC Chief White House Correspondent Jon Karl notes today, the confirmation of Hagel, a former Republican senator, “will be no slam dunk”: “Senate Democrats tell me there is no guarantee Hagel will win confirmation and that, as of right now, there are enough Democratic Senators with serious concerns about Hagel to put him below 50 votes. The bottom line: He may ultimately win confirmation, but not before a bloody fight in the Senate. On the plus side, Hagel is a decorated Vietnam veteran and a former Republican Senator who’s views on military issues closely match the president’s views. But he has already come under withering criticism from across the political spectrum. Among other things, he has come under fire for controversial comments on Israel (in 2008, he referred to Israel’s US supporters as ‘the Jewish lobby’), his opposition to some sanctions against Iran, and his suggestion, also in 2008, that the U.S. should negotiate with Hamas.” Time Magazine’s Mark Halperin had a similar prediction: “If Hagel has a good confirmation sherpa and performs well in his courtesy calls and at his hearings, he will likely be confirmed. But/and at a pretty high cost. Expect a LOT of people to want to testify against him. And don’t rule out a filibuster of this nomination, which would, obviously, change the math.” http://ti.me/VvwfU0 More on the rough road ahead for Hagel from ABC’s Martha Raddatz on”Good Morning America” today. WATCH: http://abcn.ws/VNTZBZ NOTED! ABC’s RICK KLEIN: It’s getting crowded in here. One consequence of the un-grand bargain is that Washington will be fighting fiscal battles again early this year — then likely later, too. The result is not just a feeling of déjà vu but of suffocation. Republicans and **any coalition** that wants to slow President Obama’s agenda — on immigration, gun control, **energy policy,** what have you — has the perfect way to do so now, perhaps indefinitely. “None of these issues, I think, will have the kind of priority that spending and debt are going to have over the next two or three months,” Senate Minority Leader Mitch McConnell said on ABC’s “This Week” yesterday. ABC’s AMY WALTER: For all the hand wringing about upcoming fights between the White House and Congress over Chuck Hagel, the debt ceiling and the sequester, a reminder that the two branches were designed to challenge each other. To be sure, this is a frustrating process— and one that has resulted in less than ideal outcomes. Voters say they like the idea of divided government, but they don’t like the reality of it. “THIS WEEK” REWIND: MCCONNELL: THE TAX ISSUE IS FINISHED. As President Obama and Republicans slowly approach the next round of deficit-reduction talks, Senate Minority Leader Mitch McConnell drew a line in the sand, in his interview with ABC’s George Stephanopoulos: no more tax increases. McConnell: “The tax issue is finished, over, completed. That’s behind us. Now the question is, what are we going to do about the biggest problem confronting our country and our future? And that’s our spending addiction. It’s time to confront it. The president surely knows that. I mean, he has mentioned it both publicly and privately. The time to confront it is now.” http://abcn.ws/Xbz4uz HEITKAMP: GUNG-CONTROL PROPOSALS ‘WAY IN EXTREME.’ After The Washington Post reported that Vice President Biden’s working group will press a broad gun-control agenday, newly elected Democratic Sen. Heidi Heitkamp, N.D., told ABC’s George Stephanopoulos those proposals would go to far. Heitkamp: “Let’s start addressing the problem. And to me, one of the issues that I think comes — screams out of this is the issue of mental health and the care for the mentally ill in our country, especially the dangerously mentally ill. And so we need to have a broad discussion before we start talking about gun control. … I think you need to put everything on the table, but what I hear from the administration — and if the Washington Post is to be believed — that’s way — way in extreme of what I think is necessary or even should be talked about. And it’s not going to pass.” GRETA VAN SUSTEREN GOES ON THE RECORD (WITH ABC NEWS): Fox News’ Greta Van Susteren has interviewed some of the biggest names in U.S. politics on her show, “On The Record,” but you’ll never guess who her dream guest dream political guest is. Van Susteren, who appeared on the “This Week” roundtable Sunday, answered viewer questions from Facebook and Twitter for an “All Politics is Social” web exclusive hosted by ABC’s Kaye Foley. About that dream guest, here’s her answer: “Bo, the first dog. I love animals. I’d love to be on Animal Planet. On Animal Planet you aren’t dealing with death and destruction and people fighting with each other all the time. To the extent that Bo is a part of politics, I’d love to interview Bo. Plus, I love the fact that he looks like he’s wearing white knee socks. Bo is my favorite.” WATCH the full interview: http://abcn.ws/13bVdfF THE BUZZ: with ABC’s Chris Good (@c\_good) SCOTUS RETURNS: GAY MARRIAGE, AFFIRMATIVE ACTION, VOTING RIGHTS. The Supreme Court returns to the bench today, and ABC’s Ariane de Vogue reports: The justices will hear two potentially blockbuster cases in March concerning gay marriage. One of the cases–Hollingsworth v. Perry–addresses whether there is a fundamental right to same-sex marriage. The other–Windsor v. United States–deals with the federal law that defines marriage as between a man and a woman. In both cases, the court will hear arguments on potential procedural obstacles that could stop it from getting to the core constitutional questions. The court will also hear a case challenging a key provision of the Voting Rights Act. Section 5 of the law says that certain states with a history of voter discrimination must clear any changes to their election laws with federal officials in Washington. Lawyers for Shelby County, Ala., are challenging the constitutionality of Section 5. The case, called Shelby County v. Holder, will be argued Feb. 27. The day before, the court will hear arguments in Maryland v. King, a case about whether Maryland officials can collect DNA from someone who has been arrested but not convicted of a crime. http://abcn.ws/WD3Fir SANDY AND THE CLIFF: WILL PAUL RYAN’S VOTES HAUNT HIM IN 2016? Paul Ryan voted in favor of the “fiscal cliff” tax deal but against a Hurricane Sandy relief bill that would add $9.7 billion in debt. ABC’s Shushannah Walshe reports on the potential implications for 2016: The two votes four years from now may mean nothing or could haunt Ryan if he decides to run for president in 2016, depending on who is battling for the nomination. The fiscal cliff vote could become an issue, particularly if his opponent is Florida Sen. Marco Rubio who could highlight the fact that Ryan voted for the measure while Rubio voted against it. The Sandy vote could also be resurrected if his rival is New Jersey Gov. Chris Christie who blasted members of his own party this week when Boehner decided not to vote on a $60 billion Sandy relief package after assuring lawmakers from the affected he states he would. … Will Ryan be more vocal on the looming battle to raise the debt ceiling? It will be one to watch. http://abcn.ws/Sb0YZE OBAMA’S VACATION BY THE NUMBERS. With President Obama returning from a nine-day vacation in Hawaii with family and friends, ABC’s Mary Bruce reports: Obama played FIVE rounds of golf with SEVEN different partners, spending roughly THIRTY hours on TWO different courses on Oahu. The president made FIVE early morning trips to the gym at the nearby Marine Base at Kaneohe Bay. … The Obamas ventured out for dinner with friends FOUR times, leaving their Kailua vacation home for gourmet Japanese meals at Nobu and Morimoto … The president interrupted his vacation for SIX days to negotiate the “fiscal cliff” in Washington. All told, he will have spent roughly FORTY hours on Air Force One flying between D.C. and Hawaii. http://abcn.ws/WA0xUx PELOSI: MORE TAXES IN NEXT CLIFF DEAL. The fiscal cliff isn’t quite over, and House Speaker Nancy Pelosi says tax revenues must be on the table as President Obama and congressional Republicans negotiate over how to avert budget sequestration. The Hill’s Mike Lillis reports: “‘In this legislation we had $620 billion, very significant … changing the high-end tax rate to 39.6 percent. But that is not enough on the revenue side,’ Pelosi told CBS’s Bob Schieffer in an interview taped Friday. Without offering many specifics, the California Democrat said she wants to scour the tax code for unnecessary loopholes and ‘unfair’ benefits that help those–either companies or individuals–who don’t need it.” http://bit.ly/WnUi5y CHUCK HAGEL: LET THE SNIPING BEGIN. Rumblings on Capitol Hill, already, are not good. Politico’s Scott Wong and Manu Raju report: “Sen. Lindsey Graham (R-S.C.), an Air Force reservist who serves on the Armed Services Committee that will consider the nod, said Hagel would hold the ‘most antagonistic’ views toward Israel of any defense secretary in U.S. history. … ‘It is a strange signal for the White House to send that they are willing to fight for Hagel but not Rice,’ one Senate Democratic aide said Sunday. ‘Democrats are not currently unified behind Hagel, and it will take some real **work by the administration** to get them there, if it’s even possible.’ ‘I can’t imagine why [Obama] would choose to burn his political capital **on this** nomination. For what? There is no constituency for Chuck Hagel,’ one senior GOP aide said. ‘Obama will expend every ounce of political capital he has to get him across the finish line. Dems will hate this.” <http://politi.co/VFMgc7>

#### Hagel is key to soft landing on a litany of critical military transitions—the impact is global conflict

Jessie Daniels (Truman National Security Project Fellow, worked in the US Senate) 1/7, 2013 “Chuck Hagel Nomination: A Look At the Security Threats He Will Face” http://www.policymic.com/articles/21946/chuck-hagel-would-be-a-defense-secretary-for-the-21st-century

As President Obama heads into his second term, and a new cabinet comes into shape, attention now focuses on the leading choice for Secretary of Defense: Chuck Hagel. As the Chairman of the Atlantic Council, and former Nebraska GOP Senator, Hagel certainly has the policy chops and political bona fides to take over the reins from the current Secretary Leon Panetta. The next secretary of defense will immediately be faced with managing American commitments and new priorities. The Pentagon will continue its rebalance — or "pivot" — toward the Asia-Pacific, where the U.S. has already been bolstering its presence in the region. At the same time, the next secretary of defense will preside over a transition in Afghanistan that insiders say appears harder than anticipated — both politically and operationally. Then there's the Middle East at large, which presents a separate set of challenges: Egypt's rocky political transitions, an intransigent Iran, and escalating violence in Syria. Key in managing the U.S. role in each and all of these situations is recognizing the limits of American power and influence. Fortunately, Hagel gets how complex the picture is, and would be committed to ensuring that the U.S. military does not become overextended yet again. America's commitments will also be shaped by Pentagon budget reforms. The Defense Department is scheduled to trim $487 billion in spending over the next decade. If the sequester cuts eventually do go into effect — the fiscal cliff deal only delayed them by two months — the Pentagon will face an additional $500 billion in cuts. If confirmed as the next secretary of defense, Hagel would already come into the position with the mindset that the Defense budget is "bloated." Moreover, his political experience on Capitol Hill would prove useful in guiding the department through reforms that, though necessary, are likely to be highly politicized and contentious. Aside from these near-term challenges, the next secretary of defense will also need to prepare for 21st century threats. Tomorrow's threats could just as easily come from non-state actors or take place in cyberspace. Issues once unconnected to national security — such as the environment — now play critical roles for America's military, as resource insecurity (like water or energy) can escalate the risk of conflict. During his time in the Senate and now at the Atlantic Council, Hagel has been a strategic thinker who understands the interconnectedness of an array of threats. He has demonstrated the ability to understand the terrain of these new battlefields, and would be well-prepared shape the military as it prepares for this new security environment. Considering the overall breadth and depth of his experience, Chuck Hagel would bring many relevant strengths to the table — which is all the more important, since the next Pentagon chief will find a full plate of challenges upon arrival.

### CP

#### The 50 state governments and relevant sub-federal actors should provide loan guarantees and subsides for residential solar installations.

#### It’s legitimate and politics is a net benefit

**Harvard Law Review 6** – the author isn’t named but the qualifications are: John M. Olin Fellow in Law, Economics, and Business at Harvard Law School (April, 119 Harv. L. Rev. 1855, “State Collective Action”, lexis)

Consider now the reasons why states may act collectively. In the simplest terms, collective action may be **more desirable than individual state action** because it opens a panoply of otherwise unavailable policy choices and may be more desirable than **federal action** because it allocates power to a better-positioned actor. n12 These advantages may exist [\*1859] because regional organizations have better information, are better positioned to act on that information, or avoid duplicative costs or coordination problems. n13 Also, collective action may be desirable politically because it may make certain programs either more or less politically salient. n14 Similarly, political actors may want to act collectively because doing so spreads or diversifies political risk. n15 Lastly, collective action may provide opportunities for economies of scale or rent-seeking behavior that states cannot achieve independently. n16 Some brief examples of how states may act collectively illustrate the importance of the topic. n17 As in the stylized examples, states may act collectively to reduce pollution. Groups of states also could develop plans to use common reserves of natural resources, including oil fields or aquifers that cross state lines, or plans to allocate the use of rivers, lakes, forests, or other natural resources. They may also regulate wildlife that lives in multiple states, either to protect that wildlife or to use it for commercial purposes. States may take similar action to regulate or allocate **energy** or to develop interstate transit infrastructure, such as highways, rail lines, or regional airports. States may regulate the production or distribution of goods or create economic development organizations organized either geographically or by some other trait, such as agricultural or oil and gas production. They also may wish to regulate certain industries or set labor standards in common ways or may wish to regulate products commonly by adopting similar production standards or tort rules. As a final example - although one can imagine many other motivations for state collective action - states may collectivize to provide better social welfare or governmental insurance programs.

#### Anything they can do we can do better

**Rabe, 2** – Senior Fellow, Governance Studies at the Brookings Institute (Barry, “Statehouse and Greenhouse: The States Are Taking the Lead on Climate Change” spring http://www.brookings.edu/articles/2002/spring\_energy\_rabe.aspx)

American states provide particularly fertile ground for policy innovation in climate change. First, many are quite large in terms of population, physical size, and resources devoted to environmental protection. They also spew a lot of harmful emissions. Indeed, if the American states were counted as sovereign nations, approximately half would rank among the top 60 national emitters of greenhouse gases around the globe. The annual carbon dioxide emissions of Texas, for example, exceed those of France. Indiana's exceed Indonesia's, and Georgia's exceed Venezuela's. ¶ Second, states already have considerable jurisdiction over many spheres of environmental and energy policy with direct relevance to the climate change problem. State rules affect electricity rates, land use, waste management, and transportation. States also implement many federal environmental laws, issuing more than 90 percent of all environmental permits and conducting more than 75 percent of all enforcement actions. ¶ Third, a growing body of scholarship suggests that far more innovation in American environmental and energy policy now emanates from the statehouses than from Congress. States now dominate policy formation in pollution prevention and cross-media regulatory integration, an exigency long neglected in Washington.

### CP

#### COUNTERPLAN: The fifty state governments should substantially increase Energy Efficiency Resource Standard programs and implement efficiency measures modeled off the Better Buildings Initiative.

#### Fifty state EERS policy solves efficiency across the board

**Glatt and Schwentker 2010** – \* Technology Delivery Team Member, Office of Industrial Technologies Program, DOE, \*\*Research Associate at BCS Incorporated (July, Sandy and Beth, DOE, “State Energy Efficiency Resource Standards Analysis”, http://www1.eere.energy.gov/manufacturing/states/pdfs/eers\_web\_final.pdf, WEA)

The effect of state energy policies in supporting energy efficiency in the residential, commercial, and industrial sectors is clear—states with strong energy efficiency policies save energy. Utilities’ citing these policies as the primary impetus for offering energy efficiency and other demand-side management programs prove the impact strong policies have. One tool in the energy efficiency policy toolbox, the state-implemented Energy Efficiency Resource Standard (EERS) program, has been instrumental in encouraging energy efficiency across the nation. EERS policies are adopted by state legislatures and implemented and managed by utilities. They require that electric and natural gas utilities offer programs and incentives to encourage their customers to reduce energy use by a specified amount each year, based on a percentage of total energy sales.

EERS policy programs typically start with modest targets that increase over time. Typical savings goals can range from the relatively modest 0.25% savings annually to the more aggressive end of the scale such as 1.25% annually, with the most successful states setting even more ambitious targets. Terms of performance standard goals can vary—some are annual while others are cumulative, but an EERS is a long-term strategy to achieve energy savings and realize the financial and environmental benefits of those savings over time. EERS programs typically offer utilities the flexibility to utilize a market-based trading system to reach their set targets, and they provide support and incentives for utilities to successfully manage their own and their customers’ energy use.

Utilities can work towards these goals by improving their own processes and distribution systems, implementing new efficiency standards in equipment and infrastructure, and encouraging their end-use customers to participate in energy-saving programs. In addition, they can purchase energy credits from over-performing utilities that have exceeded the set goals. 1

**EERS is a tested policy measure that has successfully reduced energy use in multiple states.** Texas was the first state to adopt an EERS in 1999. As of April 2010, 24 states had some form of EERS in place, with three others strongly considering it. Having a state EERS policy in place ensures uniform energy efficiency goals across the state. It also provides a mechanism to create support programs that lead to reduced energy use. As increasing attention is focused on cutting energy consumption and the accompanying benefits of lower energy costs and less environmental pollution, it behooves states to have the ability to track performance against goals.

**If all states were to adopt their own EERS, the United States could significantly lower energy costs, reduce air pollution, mitigate climate change, and improve energy reliability**. These policies also lead to job creation as utilities implement new efficiency programs and monitoring systems. Despite these benefits and successes in individual states, no federal EERS mandate or Energy Efficiency Portfolio Standard (EEPS), as they are also known, currently exists.

#### Solves buildings

**Waltner 2011** – MS and BS in Civil Engineering, Energy Efficiency Advocate at NRDC (2/3, Meg, NRDC, “One Way to Win the Future: Improve Commercial Building Efficiency”, http://switchboard.nrdc.org/blogs/mwaltner/one\_way\_to\_win\_the\_future\_impr.html, WEA)

Today in his speech at Penn State, President Obama announced his Better Building Initiative, which sets the goal of improving efficiency in commercial buildings 20 percent by 2020.

Commercial buildings represent a large opportunity to help rebuild the economy while benefiting the environment. Commercial buildings account for 20 percent of US energy use, while unemployment in the construction sector is at a staggering 20 percent. Promoting efficiency in commercial buildings will increase employment in the construction sector, while cutting businesses’ energy bills, allowing them to hire more workers. Lower energy bills also mean less air pollution that harms human health and the environment.

Last year, USGBC, NRDC and a collection of other organizations put together a report on the things the Obama administration could do to enhance energy efficiency in commercial buildings under existing authorities. NRDC also recently sent a memo along with other groups outlining three key priorities from this report. Two of these three priorities – loan guarantees for efficiency and improvements to the tax incentives for commercial buildings – were included in the Better Buildings Initiative announcement. For more on loan guarantees, see my colleague Philip Henderson's blog.

The existing tax incentive for commercial building efficiency is the Commercial Building Tax Deduction (the CBTD for short, Section 179D of the tax code), and it’s something we’ve been thinking about a lot lately as one way to help bridge the barriers to efficiency in commercial buildings. Effective tax incentives can help promote investment in energy efficiency that wouldn't happen otherwise due to upfront costs or lack of capital, creating jobs, while saving money and energy.

### Econ

#### Economic collapse is the only way to prevent extinction from climate change

**Cohen 2010** – columnist for the Association for the Study of Peak Oil and Gas and Energy Bulletin (2/2, Dave, Peak Watch, “Economic Growth and Climate Change – No Way Out?”)

\*note: Tim Garrett – associate professor of atmospheric sciences at the University of Utah; Vaclav Smil – Distinguished Professor in the Faculty of Environment at the University of Manitoba

Historical data suggest that only recessions decrease anthropogenic CO2 emissions. Otherwise, **if the global economy is growing, so are emissions**. The consensus view, which I have called The Radical Hypothesis, presumes that at some future inflection point, the global economy will continue to grow while emissions shrink. Since nothing in our experience suggests the Radical Hypothesis is correct, and in so far as knowledgeable people can agree that it will be very hard to achieve the technological breakthroughs required to stabilize CO2 in atmosphere at acceptable levels (e.g. 450 ppmv), the most plausible way to achieve such targets, all else being equal, is a planned, orderly **contraction of the global economy**. Mankind would endeavor to both decarbonize the energy inputs to the economy and decrease those inputs. This implies that the global economy, as modeled by Tim Garrett, would be shrinking.

The mere assumption that technological progress will be sufficient to achieve the desired stabilization of greenhouse gases in the atmosphere does not guarantee success. This assumption, like the future economic growth that depends on it, is incontrovertible only because of the faith placed in it, i.e. it must be accepted without proof or verification. It is all well & good to say with great conviction that "failure is not an option" but in the real world, failure is definitely a possibility, so risks grow. Worse yet, unquestioning faith in the impossibility of failure retards efforts achieve the necessary (but still unrealized) technologies required to reduce emissions, for if technological progress—Pielke, et. al call this "spontaneous" innovation—is guaranteed (i.e. comes "for free"), we need not try very hard to make technological progress happen. What I have called The Assumption of Technological Progress should be tossed out in so far as it is no longer in humanity's best interests to maintain it.

In a "peak oil" scenario, CO2 emissions from conventional oil will remain flat or decrease sometime in the next decade and beyond. In so far as historical experience suggests that anthropogenic emission must be growing if the economy is, this implies a shrinking global economy. Specifically, the lack of a consistent (high & rising) oil price signal, combined with our inability to quickly & seamlessly switch to non-conventional liquids (from coal, the oil sands, etc.) to meet growing future demand, implies that economic growth will be negative or unstable in such a scenario. Thus, business-as-usual (BAU)—the standard growth story assumed by economists, climate researchers and others—will be disrupted for an extended period of time in a "peak oil" scenario. If the global economy will be in recession or prone to recession as conventional oil supplies decrease, emissions will very likely be further reduced during the transition to other liquid fuels sources. Ken Caldeira's counter-intuitive view that "peak oil" is not a climate savior, at least over the next few decades, does not survive close scrutiny. A new UK report from the The New Economics Foundation goes even further in the wrong direction, arguing that "peak oil" makes BAU scenarios worse. Just as Caldeira does, the NEF assumes, but does not closely examine, a painless transition to non-conventional liquids fuels from fossil sources.

In his response to Dangerous Assumptions, the University of Manitoba's Vaclav Smil emphasized that Long-range energy forecasts are no more than fairy tales.

Why argue about plausible rates of future energy-efficiency improvements? We have known for nearly 150 years that, in the long run, efficiency gains translate into higher energy use and hence (unless there is a massive shift to non-carbon energies) into higher CO2 emissions.

The speed of transition from a predominantly fossil-fueled world to conversions of renewable flows is being grossly overestimated: all energy transitions are multi-generational affairs with their complex infrastructural and learning needs. Their progress cannot substantially be accelerated either by wishful thinking or by government ministers’ fiats...

China, the world’s largest emitter of CO2, has no intention of reducing its energy use: from 2000 to 2006 its coal consumption rose by nearly 1.1 billion tonnes and its oil consumption increased by 55%.

Consequently, the rise of atmospheric **CO2** above 450 parts per million **can be prevented only by an unprecedented** (in both severity and duration) **depression** of the global economy, or by voluntarily adopted and strictly observed limits on absolute energy use. The first is highly probable; the second would be a sapient action, but apparently not for this species.

Although I agree in the main with Smil's conclusions, I have argued that his Either-Or proposition yields similar outcomes. If humankind were to voluntarily adopt and strictly observe limits on absolute energy use, the global economy would shrink according to the limits imposed, as implied in Tim Garrett's work. Moreover, Smil's reference to Jevon's Paradox (1st paragraph) also coincides with Tim Garrett's conclusion that greater energy efficiency merely stimulates greater energy consumption supporting more economic growth and higher CO2emissions (unless accompanied by a massive, but at present unrealistic, decarbonization of the energy supply).

For now, and in the "foreseeable" future, putting the breaks on economic growth appears to be the only practical way out of the climate dilemma. Unfortunately, this solution is politically impossible, a circumstance which is reinforced by economists' incontestable, unshakable belief that economic growth will continue in all future emissions (energy) scenarios. This conclusion rests upon the equally incontestable, unshakable Assumption of Technological Progress.

I will end by quoting climate activist George Monbiot. This passage is taken from the introduction to his book Heat. The introduction is called The Failure of Good Intentions.

Two things prompted me to write this book. The first was something that happened in May, 2005, in a lecture hall in London. I had given a talk about climate change, during which I argued that there was little chance of preventing runaway global warming unless greenhouse gases were cut by 80 per cent. The third question stumped me.

"When you get your 80 per cent cut, what will this country look like?"

I hadn't thought about it. Nor could I think of a good reason why I hadn't thought about it. But a few rows from the front sat one of the environmentalists I admire and fear the most, a man called Mayer Hillman. I admire him because he says what he believes to be true and doesn't care about the consequences. I fear him because his life is a mirror in which the rest of us see our hypocrisy.

"That's such an easy question, I'll ask Mayer to answer it."

He stood up. He is 75 but he looks about 50, perhaps because he goes everywhere by bicycle. He is small and thin and fit-looking, and he throws his chest out and holds his arms to his sides when he speaks, as if standing to attention. He was smiling. I could see he was going to say something outrageous.

"A very poor third-world country."

The inescapable conclusion in 2010 is that continued economic growth at near 20th century rates in the 21st century is incompatible with taking positive, effective steps to mitigate anthropogenic climate change. Moreover, such assumptions are not compatible with a near-term peak in the conventional oil supply. Our species faces unprecedented challenges in this new century. Our response to those challenges will define Homo sapiens in ways we never had to come to grips with during the Holocene (roughly the last 10,000 years) or before that in the Pleistocene. The problems we face in this century are unique, even on geological time-scales extending far into the past beyond the 200,000-year-old Human experience on Earth.

Both our limitations and our abilities, such as they are, will be displayed in the bright, harsh light of the energy & climate outcomes in the 21st century. Regardless of who we pretend to be, our response to these challenges will tell us who we really are.

#### Environmental tipping points are real—de-dev is the only way out

**McPherson 2010** – professor emeritus of natural resources and the environment at the University of Arizona, where he taught and conducted research for 20 years. His scholarly efforts have produced nine books and well over 100 articles, and have focused for many years on conservation of biological diversity (12/1, Guy, “The road to nowhere”, <http://transitionvoice.com/2010/12/the-road-to-nowhere/>)

When I wrote about the topic of global climate change in [this space](http://transitionvoice.com/2010/10/a-climate-wake-up-call/) a mere two months ago, the situation was dire.

Each of a series of assessments indicated an increasingly disturbing outcome for global average temperature. The latest of those assessments, based on more data and more sophisticated models than prior efforts, suggest we have **passed tipping points** that may lead to the extinction of our own species, along with many others. A global average increase of two degrees Celsius likely leads to runaway greenhouse. This means destruction of most human habitat on Earth.

About six weeks after my brief review graced [Transition Voice](http://transitionvoice.com/), the situation took a turn for the worse. The International Energy Agency’s [World Energy Outlook](http://www.iea.org/w/bookshop/add.aspx?id=422)was released in early November. It contains a shocking assessment: We’re headed for a global average temperature increase of 3.5 C by 2035. If an increase of two degrees spells runaway greenhouse, you can bet the consequences of a 3.5 degree increase within 25 years is catastrophic.

The upside

On the other hand, I also pointed out unexpectedly good news in my previous essay. Completion of the ongoing **collapse of the** world’s industrial **economy** might prove sufficient to save the planet and us.

Although climate-change assessments fail to incorporate positive geo-physical feedbacks such as the release of [methane hydrates](http://www.ornl.gov/info/reporter/no16/methane.htm) and decreased [albedo](http://www.eoearth.org/article/Albedo?topic=54300), they also leave out the **negative feedback of**  world **economic collapse**. Yet it appears a single path — collapse of the world’s industrial economy — allows us to avoid runaway greenhouse and the associated extinction of Homo Sapiens.

Fortunately for us, we’re inadvertently following that path.

Assuming we transition from economic collapse to economic growth or to a [steady-state economy](http://steadystate.org/), what are the likely outcomes?

If we could wrest control of policy from the corporations who currently run the government, what choices would be wisest?

What are the costs and consequences of choosing to pursue action on the climate-change front?

Two roads diverged

First, let’s consider [two simple outcomes](http://www.bartleby.com/119/1.html) associated with the no-action alternative to which federal and state governments are firmly committed: (1) runaway climate change and (2) no significant change in climate.

If climate change turns out to be as dire as predicted, then pursuing the current no-action path leads to probable extinction of human life on Earth. First, though, we will cause mass human suffering by destroying our ability to grow food. We’ll also continue to cause the extinction of several hundred species daily. But never mind the non-human species we’re driving to extinction. After all, we’ve never expressed serious interest in them in the past. Instead let’s focus on the ability to [produce food](http://transitionvoice.com/2010/11/stop-clowning-around/) for our large and [growing human population](http://www.eoearth.org/article/Human_population_explosion).

Gleaning the truth

Many people assume food-producing regions will change locations as the planet heats up. If we can no longer produce grains in the Midwestern US, these folks believe, we’ll simply move the great American breadbasket further north. This would turn Canada into a food-producing superpower. Unfortunately, however, that’s an unlikely outcome. Canadian soils are no match for the deep, organic-rich soils of the American Midwest. Climate might be favorable for crop production as Canada warms, but grossly inadequate soil isn’t.

If climate chaos turns out to be a false alarm then the path of non action appears to be the correct one. We don’t have to make big economic sacrifices on behalf of an ambiguous future if Earth can tolerate infinite carbon emissions. This tidbit of good news comes with a warning, however. At some point, the thousands of species we’re driving to extinction catches up with us. At some point, wiping out the [pollinators](http://en.wikipedia.org/wiki/Pollinator), decomposers, and direct sources of our food turns out badly. We depend on other species for our own survival in ways we barely understand.

I’ll not make the ethical case for saving non-human species because I don’t know a dozen people in the industrialized world who care about them. But I’ll make a selfish one: we need those species for our own survival.

As with the no-action alternative, simplistically I will address two outcomes associated with the “take-action” side of the climate-change issue.

If we take significant action — which at this point probably entails allowing complete collapse of the world’s industrial economy — and climate change turns out to have been a hoax, then we’ve obviously made a horrible mistake by terminating the dream of never-ending economic growth. We will have destroyed the potential for every high school student in the US to spend a summer in Europe for immersion in another culture (sic). We will have caused economic hardship that will lead to destruction of the social safety net upon which we’ve come to depend. We will have caused people in industrialized countries to forgo fuel at gas stations, food at grocery stores, and water coming out of the municipal taps.

This scenario sounds horrific. But in fact, it’s [nirvāna](http://en.wikipedia.org/wiki/Nirvana).

Pull the plug, save the patient

Only by terminating the world’s industrial economy is there any hope for the thousands of species we drive to extinction every year. Only by terminating the world’s industrial economy is there any hope for the people in non-industrialized countries we oppress to prop up economic growth in the “developed” world. As a consequence, only by terminating the world’s industrial economy is there any hope for the future of our own species to squeeze through the [Sixth Great Extinction](http://www.sourcewatch.org/index.php?title=The_Sixth_Great_Extinction).

The second outcome, if we take action, is the potential for averting runaway greenhouse. Please read the prior paragraph again. All the benefits listed there are realized anew in light of the ongoing and accelerating climate-change apocalypse.

Further, averting climate chaos, if it’s possible at this late date, spares us environmental catastrophe in the near term. Averting climate chaos, if it’s possible at this late date, spares us catastrophic hurricanes, wildfires, floods, dust bowls, famines, epidemics, and climate refugees. Averting climate chaos, if it’s possible at this late date, spares us miserable lives and untimely deaths for the 205,000 new people we add each day to an overshot planet.

Resistance against the imperialism of never-ending economic growth is imperative, and not merely for our privileges. Our very survival as a species hangs in the balance. For those of us young enough to anticipate being alive in 2035, our survival as individuals is at stake.

#### Transition leads to sustainable localized communities

**Lewis 2000** – PhD, University of Colorado at Boulder (Chris H, “The Paradox of Global Development and the Necessary Collapse of Global Industrial Civilization” http://www.cross-x.com/archives/LewisParadox.pdf)

With the collapse of global industrial civilization, smaller, autonomous, local and regional civilizations, cultures, and polities will emerge. We can reduce the threat of mass death and genocide that will surely accompany this collapse by encouraging the creation and growth of sustainable, self-sufficient regional polities. John Cobb has already made a case for how this may work in the United States and how it is working in Kerala, India. After the collapse of global industrial civilization, First and Third World peoples won't have the material resources, biological capital, and energy and human resources to re-establish global industrial civilization. Forced by economic necessity to become dependent on local resources and ecosystems for their survival, peoples throughout the world will work to conserve and restore their environments. Those societies that destroy their local environments and economies, as modern people so often do, will themselves face collapse and ruin.

#### Economic decline solves great power war

**Bennett and Stam 2003** – \*Professor of Political Science at the Pennsylvania State University, \*\*Associate Professor in the Government Department at Dartmouth (D. Scott and Allan, University of Michigan Press, “The Behavioral Origins of War”, Chapter 5, http://www.press.umich.edu/pdf/0472098446-ch5.pdf, WEA)

Consistent with Goldstein’s (1988) arguments, we find periods of system-wide economic growth associated with increased risks of disputes escalating to all levels of disputes, including those involving the use of force and **large-scale war**. In table 5.16, we see that across all conflict categories, the increases in risk are generally of similar magnitude, with a 40 to 100 percent increase in the odds of conflict involving force during periods of economic upswing **compared to periods of downswing**. Only the probability of having disputes without the use of any force appears to drop slightly. A somewhat discouraging finding is that the associated increase in risk appears strongest for disputes escalating to war, where the risk of such conflicts appears to be 80 to 100 percent higher than the baseline risk of wan

These results stand in contrast to **debates in the 1980s** and early 1990s over relative versus absolute gains. Regime theorists such as Krasner and Keohane argued that states, when concerned with absolute (as compared to relative) gains, would be less conflict prone. This set off a long-running debate about the nature of states' preferences, which in the end devolved to a discussion of whether there was really any distinction between the two, with the most rigorous theoretical analysis demonstrating that even absolute gains could only be measured in some context, a relative one (Powell 1991). Our results suggest that there is something of a Faustian trade-off between economic gains and the likelihood of war during periods of sustained economic growth through- out the system, periods with absolute gains for all (or most) states, the incidence of war increases and rather dramatically so.

#### Even massive economic decline has zero chance of war

Robert **Jervis 11**, Professor in the Department of Political Science and School of International and Public Affairs at Columbia University, December 2011, “Force in Our Times,” Survival, Vol. 25, No. 4, p. 403-425

Even if war is still seen as evil, the security community could be dissolved if severe conflicts of interest were to arise. Could the more peaceful world generate new interests that would bring the members of the community into sharp disputes? 45 A zero-sum sense of status would be one example, perhaps linked to a steep rise in nationalism. More likely would be a worsening of the current **economic difficulties**, which could itself produce greater nationalism, undermine democracy, and bring back old-fashioned beggar-thy-neighbor economic policies. While these dangers are real, it is hard to believe that the conflicts could be great enough to lead the members of the community to contemplate fighting each other. It is not so much that economic interdependence has proceeded to the point where it could not be reversed – states that were more internally interdependent than anything seen internationally have fought bloody civil wars. Rather it is that even if the more extreme versions of free trade and economic liberalism become discredited, it is hard to see how without building on a pre-existing high level of political conflict leaders and mass opinion would come to believe that their countries could prosper by impoverishing or even attacking others. Is it possible that problems will not only become severe, but that people will entertain the thought that they have to be solved by war? While a pessimist could note that this argument does not appear as outlandish as it did before the financial crisis, an optimist could reply (correctly, in my view) that the very fact that we have seen such a sharp economic down-turn without anyone suggesting that force of arms is the solution shows that even if bad times bring about greater economic conflict, it will not make war thinkable.

#### Literally every economic indicator is positive – long term trends are outstanding

**Minerd, 1/25**/13 - Chief Investment Officer and a Managing Partner of Guggenheim Partners, LLC, a privately held global financial services firm with more than $160 billion in assets under supervision(Scott, Seeking Alpha (an investment site), “ The U.S. Economy Is Reaching Escape Velocity” <http://seekingalpha.com/article/1134471-the-u-s-economy-is-reaching-escape-velocity?source=google_news>

The U.S. economy is reaching "escape velocity," powered by the monetary rocket fuel from central banks around the world. Almost every domestic economic indicator is now positive, and the economic backdrop is stronger than it has been in the last seven years. We are in the healthiest financial condition since 2003. If the post-2003 experience were to be repeated, we could see an uninterrupted economic expansion for four years. Although pockets of uncertainty remain, such a favorable outlook for the economy and markets cannot to be ruled out.

Investors can expect a continuation of the themes that have dominated the environment since the recovery began: tighter credit spreads, low interest rates, improving employment, modest inflation, and sustained economic growth. Historically low interest rates and continued earnings growth will support higher equity valuations. As leveraged buyouts come back into play, undervalued companies with large cash balances are sure to be targets. More merger and acquisition activity would lift share prices higher, furthering the expansionary trend that is already underway.

#### Heg is inevitable

Maher 11 – Richard Maher, Ph.D. in Political Science from Brown University, Winter 2011, “The Paradox of American Unipolarity: Why the United States May Be Better Off in a Post-Unipolar World,” Orbis, Vol. 55, No. 1, p. 53-68

The United States will continue to be the ‘‘default power’’ (to use Josef Joffe’s term**)** in the near future.20 No other country will be able to duplicate the overall reach and influence of the United States—in terms of economic, political, and military power—for at least several decades. It is not clear, moreover, how many peoplewouldwant to live in aworlddominated byChina, India,Russia, or even Europe. The United States retains a number of tremendous advantages compared to possible strategic competitors: its demographics; advanced technology; raw materials; research universities and laboratories; continued dominance in global mass culture, and labor market flexibility.

#### No impact

**Goldstein 2011**, Professor IR at American University [Joshua S. Goldstein, Professor emeritus of international relations at American University, “Thing Again: War,” Sept/Oct 2011,

http://www.foreignpolicy.com/articles/2011/08/15/think\_again\_war?print=yes&hidecomments=yes&page=full]

Nor do shifts in the global balance of power doom us to a future of perpetual war. While some political scientists argue that an increasingly multipolar world is an increasingly volatile one -- that peace is best assured by the predominance of a single hegemonic power, namely the United States -- **recent geopolitical history** suggests otherwise. Relative U.S. power and worldwide conflict have **waned in tandem** over the past decade. The exceptions to the trend, Iraq and Afghanistan, have been lopsided wars waged by the hegemon, not challenges by up-and-coming new powers. The best precedent for today's emerging world order may be the 19th-century Concert of Europe, a collaboration of great powers that largely maintained the peace for a century until its breakdown and the bloodbath of World War I.

### Warming

**Doesn’t lower emissions**

**Sharman et al 11** – Principal of Incoteco (Denmark) ApS, an energy consulting and brokering company, and cofounder of DimWatt.eu, a webbased campaign for energy security (Hugh, “Renewable Energy Vision or Mirage?,” http://www.adamsmith.org/blog/energy-environment/renewable-energy-vision-or-mirage)

Wind and solar power do little to reduce carbon emissions, as they need large-scale back up generating capacity to compensate for their intermittency.¶ With the decommissioning of many of the UK’s coal-fired stations – and nearly all existing nuclear reactors – over the coming decade, energy security is now a priority for policymakers alongside the drive to reduce carbon dioxide emissions. However, even ignoring cost issues, problems of intermittency mean that renewable technologies are incapable of making a major contribution to energy security.¶ The Renewable Energy Roadmap for 2020 is hugely overambitious. Renewable energy generation is currently 28% below its already reduced target. Subsidising renewable energy also comes at a cost to consumers who pay for it through higher electricity prices. Nuclear and gas are the most viable energy sources to avoid a capacity crisis in the near future.¶

#### Warming’s irreversible

**Solomon et al ‘10** Susan Solomon et. Al, Chemical Sciences Division, Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Ph.D. in Climotology University of California, Berkeley, Nobel Peace Prize Winner, Chairman of the IPCC, Gian-Kasper Plattner, Deputy Head, Director of Science, Technical Support Unit Working Group I, Intergovernmental Panel on Climate Change Affiliated Scientist, Climate and Environmental Physics, Physics Institute, University of Bern, Switzerland, John S. Daniel, research scientist at the National Oceanic and Atmospheric Administration (NOAA), Ph.D. in physics from the University of Michigan, Ann Arbor, Todd J. Sanford, Cooperative Institute for Research in Environmental Science, University of Colorado Daniel M. Murphy, Chemical Sciences Division, Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Boulder Gian-Kasper Plattner, Deputy Head, Director of Science, Technical Support Unit Working Group I, Intergovernmental Panel on Climate Change, Affiliated Scientist, Climate and Environmental Physics, Physics Institute, University of Bern, Switzerland Reto Knutti, Institute for Atmospheric and Climate Science, Eidgenössiche Technische Hochschule Zurich and Pierre Friedlingstein, Chair, Mathematical Modelling of Climate Systems, member of the Science Steering Committee of the Analysis Integration and Modeling of the Earth System (AIMES) programme of IGBP and of the Global Carbon Project (GCP) of the Earth System Science Partnership (ESSP) (Proceedings of the National Academy of the Sciences of the United States of America, "Persistence of climate changes due to a range of greenhouse gases", October 26, 2010 Vol 107.43: 18354-18359)

Carbon dioxide, methane, nitrous oxide, and other greenhouse gases increased over the course of the 20th century due to human activities. The human-caused increases in these gases are the primary forcing that accounts for much of the global warming of the past fifty years, with carbon dioxide being the most important single radiative forcing agent (1). Recent studies have shown that the human-caused warming linked to carbon dioxide is nearly irreversible for more than 1,000 y, even if emissions of the gas were to cease entirely (2–5). The importance of the ocean in taking up heat and slowing the response of the climate system to radiative forcing changes has been noted in many studies (e.g., refs. 6 and 7). The key role of the ocean’s thermal lag has also been highlighted by recent approaches to proposed metrics for comparing the warming of different greenhouse gases (8, 9). Among the observations attesting to the importance of these effects are those showing that climate changes caused by transient volcanic aerosol loading persist for more than 5 y (7, 10), and a portion can be expected to last more than a century in the ocean (11–13); clearly these signals persist far longer than the radiative forcing decay timescale of about 12–18 mo for the volcanic aerosol (14, 15). Thus the observed climate response to volcanic events suggests that some persistence of climate change should be expected even for quite short-lived radiative forcing perturbations. It follows that the climate changes induced by short-lived anthropogenic greenhouse gases such as methane or hydrofluorocarbons (HFCs) may not decrease in concert with decreases in concentration if the anthropogenic emissions of those gases were to be eliminated. In this paper, our primary goal is to show how different processes and timescales contribute to determining how long the climate changes due to various greenhouse gases could be expected to remain if anthropogenic emissions were to cease. Advances in modeling have led to improved AtmosphereOcean General Circulation Models (AOGCMs) as well as to Earth Models of Intermediate Complexity (EMICs). Although a detailed representation of the climate system changes on regional scales can only be provided by AOGCMs, the simpler EMICs have been shown to be useful, particularly to examine phenomena on a global average basis. In this work, we use the Bern 2.5CC EMIC (see Materials and Methods and SI Text), which has been extensively intercompared to other EMICs and to complex AOGCMs (3, 4). It should be noted that, although the Bern 2.5CC EMIC includes a representation of the surface and deep ocean, it does not include processes such as ice sheet losses or changes in the Earth’s albedo linked to evolution of vegetation. However, it is noteworthy that this EMIC, although parameterized and simplified, includes 14 levels in the ocean; further, its global ocean heat uptake and climate sensitivity are near the mean of available complex models, and its computed timescales for uptake of tracers into the ocean have been shown to compare well to observations (16). A recent study (17) explored the response of one AOGCM to a sudden stop of all forcing, and the Bern 2.5CC EMIC shows broad similarities in computed warming to that study (see Fig. S1), although there are also differences in detail. The climate sensitivity (which characterizes the long-term absolute warming response to a doubling of atmospheric carbon dioxide concentrations) is 3 °C for the model used here. Our results should be considered illustrative and exploratory rather than fully quantitative given the limitations of the EMIC and the uncertainties in climate sensitivity. Results One Illustrative Scenario to 2050. In the absence of mitigation policy, concentrations of the three major greenhouse gases, carbon dioxide, methane, and nitrous oxide can be expected to increase in this century. If emissions were to cease, anthropogenic CO2 would be removed from the atmosphere by a series of processes operating at different timescales (18). Over timescales of decades, both the land and upper ocean are important sinks. Over centuries to millennia, deep oceanic processes become dominant and are controlled by relatively well-understood physics and chemistry that provide broad consistency across models (see, for example, Fig. S2 showing how the removal of a pulse of carbon compares across a range of models). About 20% of the emitted anthropogenic carbon **remains in the atmosphere for** many **thousands of years** (with a range across models including the Bern 2.5CC model being about 19 4% at year 1000 after a pulse emission; see ref. 19), until much slower weathering processes affect the carbonate balance in the ocean (e.g., ref. 18). Models with stronger carbon/climate feedbacks than the one considered here could display larger and more persistent warmings due to both CO2 and non-CO2 greenhouse gases, through reduced land and ocean uptake of carbon in a warmer world. Here our focus is not on the strength of carbon/climate feedbacks that can lead to differences in the carbon concentration decay, but rather on the factors that control the climate response to a given decay. The removal processes of other anthropogenic gases including methane and nitrous oxide are much more simply described by exponential decay constants of about 10 and 114 y, respectively (1), due mainly to known chemical reactions in the atmosphere. In this illustrative study, we do not include the feedback of changes in methane upon its own lifetime (20). We also do not account for potential interactions between CO2 and other gases, such as the production of carbon dioxide from methane oxidation (21), or changes to the carbon cycle through, e.g., methane/ozone chemistry (22). Fig. 1 shows the computed future global warming contributions for carbon dioxide, methane, and nitrous oxide for a midrange scenario (23) of projected future anthropogenic emissions of these gases to 2050. Radiative forcings for all three of these gases, and their spectral overlaps, are represented in this work using the expressions assessed in ref. 24. In 2050, the anthropogenic emissions are stopped entirely for illustration purposes. The figure shows nearly irreversible warming for at least 1,000 y due to the imposed carbon dioxide increases, as in previous work. **All published studies to date**, which use multiple EMICs and one AOGCM, show largely irreversible warming due to future carbon dioxide increases (to within about 0.5 °C) on a timescale of at least 1,000 y (3–5, 25, 26). Fig. 1 shows that the calculated future warmings due to anthropogenic CH4 and N2O also persist notably longer than the lifetimes of these gases. The figure illustrates that emissions of key non-CO2 greenhouse gases such as CH4 or N2O could lead to warming that both temporarily exceeds a given stabilization target (e.g., 2 °C as proposed by the G8 group of nations and in the Copenhagen goals) and remains present longer than the gas lifetimes even if emissions were to cease. A number of recent studies have underscored the important point that reductions of non-CO2 greenhouse gas emissions are an approach that can indeed reverse some past climate changes (e.g., ref. 27). Understanding how quickly such reversal could happen and why is an important policy and science question. Fig. 1 implies that the use of policy measures to reduce emissions of short-lived gases will be less effective as a rapid climate mitigation strategy than would be thought if based only upon the gas lifetime. Fig. 2 illustrates the factors influencing the warming contributions of each gas for the test case in Fig. 1 in more detail, by showing normalized values (relative to one at their peaks) of the warming along with the radiative forcings and concentrations of CO2 , N2O, and CH4 . For example, about two-thirds of the calculated warming due to N2O is still present 114 y (one atmospheric lifetime) after emissions are halted, despite the fact that its excess concentration and associated radiative forcing at that time has dropped to about one-third of the peak value.

#### No extinction – empirically denied

**Carter 11–** Robert, PhD, Adjuct Research Fellow, James Cook University, Craig Idso, PhD, Chairman at the Center for the Study of Carbon Dioxide and Global Change, Fred Singer, PhD, President of the Science and Environmental Policy Project, Susan Crockford, evolutionary biologist with a specialty in skeletal taxonomy , paleozoology and vertebrate evolution, Joseph D’Aleo, 30 years of experience in professional meteorology, former college professor of Meteorology at Lyndon State College, Indur Goklany, independent scholar, author, and co-editor of the Electronic Journal of Sustainable Development, Sherwood Idso, President of the Center for the Study of Carbon Dioxide and Global Change, Research Physicist with the US Department of Agriculture, Adjunct Professor in the Departments of Geology, Botany, and Microbiology at Arizona State University, Bachelor of Physics, Master of Science, and Doctor of Philosophy, all from the University of Minnesota, Madhav Khandekar, former research scientist from Environment Canada and is an expert reviewer for the IPCC 2007 Climate Change Panel, Anthony Lupo, Department Chair and Professor of Atmospheric Science at the University of Missouri, Willie Soon, astrophysicist at the Solar and Stellar Physics Division of the Harvard-Smithsonian Center for Astrophysics, Mitch Taylor (Canada) (March 8th, “[Surviving](file:///C:\Users\Marc\Desktop\Surviving) the Unpreceented Climate Change of the IPCC” <http://www.nipccreport.org/articles/2011/mar/8mar2011a5.html>) Jacome

On the other hand, they indicate that some biologists and climatologists have pointed out that "many of the predicted increases in climate have happened before, in terms of both magnitude and rate of change (e.g. Royer, 2008; Zachos *et al*., 2008), and yet biotic communities have remained remarkably resilient (Mayle and Power, 2008) and in some cases thrived (Svenning and Condit, 2008)." But they report that those who mention these things are often "placed in the 'climate-change denier' category," although the purpose for pointing out these facts is simply to present "a sound scientific basis for understanding biotic responses to the magnitudes and rates of climate change predicted for the future through using the vast data resource that we can exploit in fossil records." Going on to do just that, Willis *et al*. focus on "intervals in time in the fossil record when atmospheric CO2 concentrations increased up to 1200 ppm, temperatures in mid- to high-latitudes increased by greater than 4°C within 60 years, and sea levels rose by up to 3 m higher than present," describing studies of past biotic responses that indicate "the scale and impact of the magnitude and rate of such climate changes on biodiversity." And what emerges from those studies, as they describe it, "is evidence for rapid community turnover, migrations, development of novel ecosystems and thresholds from one stable ecosystem state to another." And, most importantly in this regard, they report "there is very little evidence for broad-scale extinctions due to a warming world." In concluding, the Norwegian, Swedish and UK researchers say that "based on such evidence we urge some caution in assuming broad-scale extinctions of species will occur due solely to climate changes of the magnitude and rate predicted for the next century," reiterating that "the fossil record indicates remarkable biotic resilience to wide amplitude fluctuations in climate.

#### International climate leadership is impossible

**Cohen & Miller 12**—Steven Cohen is executive director of Columbia University’s Earth Institute, USA and professor in the practice of public affairs at the School of International and Public Affairs (SIPA). Alison Miller is a senior program manager at Columbia University’s Earth Institute, USA. Miller received a master’s of public administration in environmental science and policy at Columbia’s School of International and Public Affairs (Bulletin of the Atomic Scientists, January/ February 2012, “Climate change 2011: A status report on US policy,” SAGE Journals, RBatra)

Throughout 2011, the growing partisan divide in Congress stalled new federal climate policy, and it is likely that this will continue to affect US efforts on climate change for the coming year, at least. The overarching reality of this divide has frustrated all efforts to pass a cap-and-trade carbon emissions permitting system; spawned a running battle between the US Environmental Protection Agency, which is in the process of implementing regulations on the emission of greenhouse gases, and Congress, where Republicans and some oil-, gas-, and coal-state Democrats have tried to block these efforts; pushed most substantive climate change policy action down to the municipal level; **and hindered US ability to effectively negotiate an international climate agreement, essentially turning UN conferences into educational tools rather than policy-making venues.**

#### Historical climate occilation proves its natural

**Carter 2-8–** Robert, PhD, Adjuct Research Fellow, James Cook University, Craig Idso, PhD, Chairman at the Center for the Study of Carbon Dioxide and Global Change, Fred Singer, PhD, President of the Science and Environmental Policy Project, Susan Crockford, evolutionary biologist with a specialty in skeletal taxonomy , paleozoology and vertebrate evolution, Joseph D’Aleo, 30 years of experience in professional meteorology, former college professor of Meteorology at Lyndon State College, Indur Goklany, independent scholar, author, and co-editor of the Electronic Journal of Sustainable Development, Sherwood Idso, President of the Center for the Study of Carbon Dioxide and Global Change, Research Physicist with the US Department of Agriculture, Adjunct Professor in the Departments of Geology, Botany, and Microbiology at Arizona State University, Bachelor of Physics, Master of Science, and Doctor of Philosophy, all from the University of Minnesota, Madhav Khandekar, former research scientist from Environment Canada and is an expert reviewer for the IPCC 2007 Climate Change Panel, Anthony Lupo, Department Chair and Professor of Atmospheric Science at the University of Missouri, Willie Soon, astrophysicist at the Solar and Stellar Physics Division of the Harvard-Smithsonian Center for Astrophysics, Mitch Taylor (Canada) (February 2012, “Eight Centuries of Climate Change in Northeast Spain” <http://www.nipccreport.org/articles/2012/feb/8feb2012a3.html>) Jacome

According to Morellon *et al*. (2011), "in the context of present-day global warming, there is increased interest in documenting climate variability during the last millennium," since "it is crucial to reconstruct pre-industrial conditions to discriminate anthropogenic components (i.e., greenhouse gases, land-use changes) from natural forcings (i.e., solar variability, volcanic emissions)."

Against this backdrop, Morellon *et al*. conducted a multi-proxy study of several short sediment cores they recovered from Lake Estanya (42°02'N, 0°32'E) in the Pre-Pyrenean Ranges of northeast Spain, which "provides a detailed record of the complex environmental, hydrological and anthropogenic interactions occurring in the area since medieval times." More specifically, they say that "the integration of sedimentary facies, elemental and isotopic geochemistry, and biological proxies (diatoms, chironomids and pollen), together with a robust chronological control, provided by AMS radiocarbon dating and 210Pb and 137Cs radiometric techniques, enabled precise reconstruction of the main phases of environmental change, associated with the Medieval Warm Period (MWP), the Little Ice Age (LIA) and the industrial era." And what did they find?

The thirteen researchers identified the MWP as occurring in their record from AD 1150 to 1300, noting that their pollen data reflect "warmer and drier conditions," in harmony with the higher temperatures of the Iberian Peninsula over the same time period that have been documented by Martinez-Cortizas *et al*. (1999), the higher temperatures of the Western Mediterranean region found by Taricco *et al*. (2008), and the global reconstructions of Crowley and Lowery (2000) and Osborn and Briffa (2006), which "clearly document warmer conditions from the twelfth to fourteenth centuries," which warmth, in the words of Morellon *et al*. is "likely related to increased solar irradiance (Bard *et al*., 2000), persistent La Niña-like tropical Pacific conditions, a warm phase of the Atlantic Multidecadal Oscillation, and a more frequent positive phase of the North Atlantic Oscillation (Seager *et al*., 2007)."

Following hard on the heels of the MWP, Morellon *et al*. note the occurrence of the LIA, which they recognize as occurring from AD 1300 to 1850. And here they report that, on the Iberian Peninsula, "lower temperatures (Martinez-Cortizas *et al*., 1999) characterize this period," which "coincided with colder North Atlantic (Bond *et al*., 2001) and Mediterranean sea surface temperatures (Taricco *et al*., 2008) and a phase of mountain glacier advance (Wanner *et al*., 2008)." And following the LIA they identify the transition period of AD 1850-2004 that takes the region into the Current Warm Period.

In discussing all three of these distinctive periods, they say that "a comparison of the main hydrological transitions during the last 800 years in Lake Estanya and solar irradiance (Bard *et al*., 2000) reveals that lower lake levels dominated during periods of enhanced solar activity (MWP and post-1850 AD) and higher lake levels during periods of diminished solar activity (LIA)." And *within* the LIA, they note that periods of higher lake levels or evidence of increased water balance occurred during the solar minima of Wolf (AD 1282-1342), Sporer (AD 1460-1550), Maunder (AD 1645-1715) and Dalton (AD 1790-1830).

In light of these several observations it would appear that the multi-centennial climate oscillation uncovered by Morellon *et al*. has been driven by a similar oscillation in solar activity, as well as by multi-decadal solar activity *fluctuations* superimposed upon that longer-period *oscillation*. And these relationships suggest that **there is no compelling need to attribute 20th-century global warming to the concomitant increase in the air's CO2 content**. **Natural variability appears** quite **capable of explaining it all.**

## 2nc

### 2nc framework

#### 1. They isolate policy from politics, that’s Madra—condensing advocacy to a 4 second plan means you can’t assess who debated better—plan focus trains you not to defend the process by which you make conclusions, which turns their offense

**Gunder et al**, Aukland University senior planning lecturer, **2009**

(Michael, Planning in Ten Words or Less: A Lacanian Entanglement with Spatial Planning pgs 111-2)

The hegemonic network, or bloc, **initially shapes the debates** and draws on¶ appropriate policies of desired success, such as the needs of bohemians, knowledge¶ clusters, or talented knowledge workers, as to what constitutes their desired¶ enjoyment (cobblestones, chrome and cappuccinos at sidewalk cafes) and what¶ is therefore lacking in local competitiveness. In tum, this defines what is blighted¶ and dysfunctional and in need of economic, spatial planning, or other, remedy.¶ Such an argument is predicated on a logic, or more accurately a rhetoric, that a¶ lack of a particular defined type of enjoyment, or competitiveness (for surely they¶ are one and the same) is inherently unhealthy for the aggregate social body. Lack¶ and its resolution are generally presented as technical, rather than political issues.¶ Consequently, technocrats in partnership with their "dominant stakeholders” can¶ ensure the impression of rationally seeking to produce happiness for the many,¶ whilst, of course, achieving their stakeholders' specific interests (Gunder and¶ Hillier 2007a, 469).

The current “post-democratic” milieu facilitates the above through avoidance¶ of **critical** policy **debate challenging** favoured orthodox positions and **policy**¶ **approaches**. Consideration of policy deficiencies, or alternative “solutions”, are¶ eradicated from political debate so that while “token institutions of liberal democracy”:¶ are retained, conflicting positions and arguments are negated (Stavrakakis 2003,¶ 59). Consequently, “the safe names in the field who feed the policy orthodoxy are¶ repeatedly used, or their work drawn upon, by different stakeholders, while more¶ critical voices are **silenced by** their **inability to shape policy debates**' (Boland 2007,¶ 1032). The economic development or spatial planning policy analyst thus continues¶ to partition reality ideologically by deploying only the orthodox "˜successful' or¶ "best practice' economic development or spatial planning responses. This further¶ maintains the dominant, or hegemonic, status quo while providing "a cover and¶ **shield against critical thought** by acting in the manner of a "buffer" isolating the¶ political held from any research that is independent and radical in its conception¶ as in its implications for public policy' (Wacquant 2004, 99). At the same time,¶ adoption of the hegemonic orthodoxy tends to generate similar policy responses¶ for every competing local area or city-region, largely resulting in a zero-sum game¶ (Blair and Kumar 1997).

#### Key to deliberation—the alt is a process of investigation which solves better—coming to a debate tournament demanding political action is absurd and displaces agency—our arg is that the framework for analysis is itself a political choice

**Adaman and Madra** **2012** – \*economic professor at Bogazici University in Istanbul, \*\*PhD from UMass-Amherst, economics professor (Fikret and Yahya, Bogazici University, “Understanding Neoliberalism as Economization: The Case of the Ecology”, http://www.econ.boun.edu.tr/content/wp/EC2012\_04.pdf, WEA)

States as agents of economization

Neoliberal reason is therefore not simply about market expansion and the withdrawal of the ¶ welfare state, but more broadly about reconfiguring the state and its functions so that the state ¶ governs its subjects through a filter of economic incentives rather than direct coercion. In ¶ other words, supposed subjects of the neoliberal state are not citizen-subjects with political and ¶ social rights, but rather economic subjects who are supposed to comprehend (hence, ¶ calculative) and respond predictably (hence, calculable) to economic incentives (and ¶ disincentives). There are mainly two ways in which states under the sway of neoliberal reason ¶ aim to manipulate the conduct of their subjects. The first is through markets, or market-like ¶ incentive-compatible institutional mechanisms that economic experts design based on the ¶ behaviorist assumption that economic agents respond predictably to economic (but not ¶ necessarily pecuniary) incentives, to achieve certain discrete objectives. The second involves a ¶ revision of the way the bureaucracy functions. Here, the neoliberal reason functions as an ¶ internal critique of the way bureaucratic dispositifs organize themselves: The typical modus¶ operandi of this critique is to submit the bureaucracy to efficiency audits and subsequently ¶ advocate the subcontracting of various functions of the state to the private sector either by fullblown privatization or by public-private partnerships.

While in the first case citizen-subjects are treated solely as economic beings, in the second case ¶ the state is conceived as an enterprise, i.e., a production unit, an economic agency whose ¶ functions are persistently submitted to various forms of economic auditing, thereby suppressing ¶ all other (social, political, ecological) priorities through a permanent economic criticism. ¶ Subcontracting, public-private partnerships, and privatization are all different mechanisms ¶ through which contemporary governments embrace the discourses and practices of ¶ contemporary multinational corporations. In either case, however, economic **policy decisions** ¶ (whether they involve macroeconomic or microeconomic matters) **are isolated from** public ¶ debate and **deliberation, and** **treated as matters of** technocratic design and **implementation**, ¶ while regulation, to the extent it is warranted, is mostly conducted by experts outside political ¶ life—the so-called independent regulatory agencies. **In the process, democratic participation** in ¶ decision-making **is either limited to an already** highly-**commodified**, spectacularized, mediatized ¶ electoral **politics**, or to the calculus of opinion polls where consumer discontent can be ¶ managed through public relations experts. As a result, a **highly reductionist notion** of economic ¶ efficiency ends up being the only criteria with which to measure the success or failure of such ¶ decisions. Meanwhile, individuals with financial means are free to provide support to those in ¶ need through charity organizations or corporations via their social responsibility channels.

Here, two related caveats should be noted to sharpen the central thrust of the argument¶ proposed in this chapter. First, the separation of the economic sphere from the social-ecological whole is not an ontological given, but rather a political project. By treating social¶ subjectivity solely in economic terms and deliberately trying to insulate policy-making from ¶ popular politics and democratic participation, the neoliberal project of economization makes a ¶ political choice. Since there are no economic decisions without a multitude of complex and ¶ over-determined social consequences, the attempt to block (through economization) all ¶ political modes of dissent, objection and negotiation available (e.g., “voice”) to those who are ¶ affected from the said economic decisions is **itself a political choice**. In short, economization is ¶ itself a political project.

Yet, this drive towards technocratization and economization—which constitutes the second ¶ caveat—does not mean that the dirty and messy distortions of politics are gradually being ¶ removed from policy-making. On the contrary, to the extent that policy making is being ¶ insulated from popular and democratic control, it becomes **exposed to the “distortions” of** a ¶ politics of **rent-seeking and speculation**—ironically, as predicted by the representatives of the ¶ Virginia School. Most public-private partnerships are hammered behind closed doors of a ¶ bureaucracy where states and multinational corporations divide the economic rent among ¶ themselves. The growing concentration of capital at the global scale gives various industries ¶ (armament, chemical, health care, petroleum, etc.—see, e.g., Klein, 2008) enormous amount ¶ of leverage over the governments (especially the developing ones). It is extremely important, ¶ however, to note that this tendency toward rent-seeking is not a perversion of the neoliberal ¶ reason. For much of neoliberal theory (in particular, for the Austrian and the Chicago schools), ¶ private monopolies and other forms of concentration of capital are preferred to government ¶ control and ownership. And furthermore, for some (such as the Virginia and the Chicago ¶ schools), rent-seeking is a natural implication of the “opportunism” of human beings, even ¶ though neoliberal thinkers disagree whether rent-seeking is essentially economically efficient (as ¶ in “capture” theories of the Chicago school imply) or inefficient (as in rent-seeking theories of ¶ the Virginia school imply) (Madra and Adaman, 2010).

This reconfiguration of the way modern states in advanced capitalist social formations govern ¶ the social manifests itself in all domains of public and social policy-making. From education to ¶ health, and employment to insurance, there is an observable **shift from** rights-based policymaking forged through public **deliberation and participation, to policy-making based solely on** ¶ economic viability where policy issues are treated as matters of **technocratic calculation**. In this ¶ regard, as noted above, the **treatment of subjectivity** solely in behaviorist terms of economic ¶ incentives **functions as the key conceptual choice** that makes the technocratization of public ¶ policy possible. Neoliberal thinking and practices certainly have a significant impact on the ¶ ecology. The next section will focus on the different means through which various forms of ¶ neoliberal governmentality propose and actualize the economization of the ecology.

#### Their vocational training model means skills are force multipliers for inequality—prior ethical responsibility is key for educators

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In opposition to these positions, I want to reclaim a tradition in radical educational theory and cultural studies in which pedagogy as a critical practice is central to any viable notion of agency, inclusive democracy, and a broader global public sphere. Pedagogy as both a language of critique and possibility looms large in these critical traditions, not as a technique or a priori set of methods, but as a political and moral practice. As a political practice, pedagogy is viewed as the outgrowth of struggles and illuminates the relationships among power, knowledge, and ideology, while self-consciously, if not self-critically, recognizing the role it plays as a deliberate attempt to influence how and what knowledge and identities are produced within particular sets of social relations. As a moral practice, pedagogy recognizes that what cultural workers, artists, activists, media workers, and others teach cannot be abstracted from what it means to invest in public life, presuppose some notion of the future, or locate oneself in a public discourse. The moral implications of pedagogy also suggest that **our responsibility as intellectuals** for the public cannot be separated from the consequences of the knowledge we produce, the social relations we legitimate, and the ideologies and identities we offer up to students as well as colleagues.¶ **Refusing to decouple politics from pedagogy** means, in part, creating those public spaces for engaging students in robust dialogue, challenging them to think critically about received knowledge and energizing them to recognize their own power as individual and social agents. Pedagogy has a relationship to social change in that it should not only help students frame their sense of understanding, imagination, and knowledge within a wider sense of history, politics, and democracy but should also enable them to recognize that they can do something to alleviate human suffering, as the late Susan Sontag (2003) has suggested. Part of this task necessitates that cultural studies theorists and educators anchor their own work, however diverse, in a radical project that seriously engages the promise of an unrealized democracy against its really existing and greviously incomplete forms. Of crucial importance to such a project is rejecting the assumption that theorists can understand social problems without contesting their appearance in public life. More specifically, any viable cultural politics needs a socially committed notion of injustice if we are to take seriously what it means to fight for the idea of the good society. Zygmunt Bauman (2002) is right in arguing that "if there is no room for the idea of wrong society, there is hardly much chance for the idea of good society to be born, let alone make waves" (p. 170).¶ Cultural studies' theorists need to be more forceful, if not more committed, to linking their overall politics to modes of critique and collective action that address the presupposition that democratic societies are never too just, which means that a democratic society must constantly nurture the possibilities for self-critique, collective agency, and forms of citizenship in which people play a fundamental role in shaping the material relations of power and ideological forces that affect their everyday lives. Within the **ongoing process** of democratization lies the promise of a society that is open to exchange, questioning, and self-criticism, a democracy that is never finished, and one that opposes neoliberal and neoconservative attempts to supplant the concept of an open society with a fundamentalist market-driven or authoritarian one.¶ Cultural studies theorists who work in higher education need to make clear that the issue is not whether higher education has become contaminated by politics, as much as recognizing that **education is already a space of politics**, power, and authority. At the same time, **they can make visible their opposition to** those **approaches** to pedagogy **that reduce it to a set of skills** to enhance one's visibility in the corporate sector or an ideological litmus test that measures one's patriotism or ratings on the rapture index. There is a disquieting refusal in the contemporary academy to raise broader questions about the social, economic, and political forces shaping the very terrain of higher education—particularly unbridled market forces, fundamentalist groups, and racist and sexist forces that unequally value diverse groups within relations of academic power.¶ There is also a general misunderstanding of how teacher authority can be used to create the pedagogical conditions for critical forms of education without necessarily falling into the trap of simply indoctrinating students. For instance, many conservative and liberal educators believe that any notion of critical pedagogy that is self-conscious about its politics and engages students in ways that offer them the possibility for becoming critical—what Lani Guinier (2003:6) calls the need to educate students "to participate in civic life, and to encourage graduates to give back to the community, which through taxes, made their education possible"—leaves students out of the conversation or presupposes too much or simply represents a form of pedagogical tyranny. While such educators believe in practices that open up the possibility of questioning among students, they often refuse to connect the pedagogical conditions that challenge how and what students think at the moment to the next task of prompting them to imagine changing the world around them so as to expand and deepen its democratic possibilities. Teaching students how to argue, draw on their own experiences, or engage in rigorous dialogue says nothing about why they should engage in these actions in the first place. How the culture of argumentation and questioning relates to giving students the tools they need to fight oppressive forms of power, make the world a more meaningful and just place, and develop a sense of social responsibility is missing in contemporary, progressive frameworks of education.¶ While no pedagogical intervention should fall to the level of propaganda, a pedagogy which attempts to empower critical citizens can't and shouldn't try to avoid politics. Pedagogy must address the relationships between politics and agency, knowledge and power, subject positions and values, and learning and social change while always being open to debate, resistance, and a culture of questioning. Liberal educators committed to simply raising questions have no language for linking learning to forms of public minded scholarship that would enable students to consider the important relationship between democratic public life and education, or that would encourage students pedagogically to enter the sphere of the political, enabling them to think about how they might participate in a democracy by taking what they learn into new locations and battlegrounds—a fourth grade classroom, a church, the media, a politician's office, the courts, a campus—or for that matter taking on collaborative projects that address the myriad of problems citizens face on a local, national, and global level in a diminishing democracy.¶ In spite of the professional pretense to neutrality, **academics** in the field of cultural studies **need to do more** pedagogically **than simply teach students how to argue** and question. Students need much more from their educational experience. Democratic societies need educated citizens who are steeped in more than the skills of argumentation. And it is precisely this democratic project that affirms the critical function of education and refuses to narrow its goals and aspirations to methodological considerations. As Amy Gutmann (1999) argues, education is always political because it is connected to the acquisition of agency, the ability to struggle with ongoing relations of power, and is a precondition for creating informed and critical citizens who act on the world. This is not a notion of education tied to the alleged neutrality of the academy or the new conservative call for "intellectual diversity" but to a vision of pedagogy that is directive and interventionist on the side of producing a substantive democratic society. This is what makes critical pedagogy different from training. And it is precisely the failure to connect learning to its democratic functions and goals that provides rationales for pedagogical approaches that strip critical and democratic possibilities from what it means to be educated.¶ Cultural studies theorists and educators would do well to take account of the profound transformations taking place in the public sphere and reclaim pedagogy as a central element of cultural politics. In part, this means once again recognizing, as Pierre Bourdieu (2003) has insisted, that the "power of the dominant order is not just economic, but intellectual—lying in the realm of beliefs"(p. 66), and it is precisely within the domain of ideas that a sense of utopian possibility can be restored to the public realm. Such a task suggests that academics and other cultural workers actively resist the ways in which neoliberalism discourages teachers and students from becoming critical intellectuals by **turning them into human data banks**. Educators and other cultural workers need to build alliances across differences, academic disciplines, and national boundaries as part of broader efforts to develop social movements in defense of the public good and social justice. No small part of this task requires that such groups make visible the connection between the war at home and abroad. If the growing authoritarianism in the U.S. is to be challenged, it is necessary to oppose not only an imperial foreign policy, but also the shameful tax cuts for the rich, the dismantling of the welfare state, the attack on unions, and those policies that sacrifice civil liberties in the cause of national security.¶ Opposing the authoritarian politics of neoliberalism, militarism, and neoconservatism means developing enclaves of resistance in order to stop the incarceration of a generation of young black and brown men and women, the privatization of the commons, the attack on public schools, the increasing corporatization of higher education, the growing militarization of public life, and the use of power based on the assumption that empire abroad entails tyranny and repression at home. But resistance needs to be more than local or rooted in the specificity of particular struggles. Progressives need to develop national and international movements designed to fight the new authoritarianism emerging in the United States and elsewhere. In part, this means revitalizing social movements such as civil rights, labor, environmental, and anti-globalization on the basis of shared values and a moral vision rather than simply issue-based coalitions. This suggests organizing workers, intellectuals, students, youth, and others through a language of critique and possibility in which diverse forms of oppression are addressed through a larger discourse of radical democracy, a discourse that addresses not only what it means to think in terms of a general notion of freedom capable of challenging corporate rule, religious fundamentalism, and the new ideologies of empire, but also what it might mean to link freedom to a shared sense of hope, happiness, community, equality, and social justice. Democracy implies a level of shared beliefs, practices, and a commitment to build a more humane future. Politics in this sense points to a struggle over those social, economic, cultural, and institutional forces that make democracy purposeful for all people. But this fundamentally **requires something prior**—a reclaiming of the social and cultural basis of a critical education that makes the very struggle over democratic politics meaningful and understandable as part of a broader affective, intellectual, and theoretical investment in public life (Couldry 2004).

### 2nc at: perm

#### The perm is bad:

1. The plan is a bad idea, and if it’s close we’ll win you should be skeptical about including a neoliberal concession

2. Doesn’t test competition, even if it’s compatible in the abstract—here’s an advocate for rejection

**Glover et al 2006** – \*Policy Fellow at the Center for Energy and Environmental Policy, University of Delaware, \*\*Directs the Urban Studies and Wheaton in Chicago programs, selected to the Chicago Council on Global Affairs Emerging Leaders Program for 2011-2013, \*\*\*2007 Nobel Peace Prize winner, Distinguished Professor of Energy & Climate Policy at the University of Delaware, Head of the Center for Energy and Environmental Policy (Leigh Glover, Noah Toly, John Byrne, “Energy as a Social Project: Recovering a Discourse”, in “Transforming Power: Energy, Environment, and Society in Conflict”, p. 1-32, http://www.ceep.udel.edu/energy/publications/2006\_es\_energy\_as\_a\_social\_project.pdf, WEA)

When measured in social and political-economic terms, the current energy¶ **discourse appears impoverished**. Many of its leading voices proclaim great¶ things will issue from the adoption of their strategies (conventional or sustainable), yet inquiry into the social and political-economic interests that¶ power promises of greatness by either camp is mostly absent. In reply, some¶ participants may **petition for a progressive middle ground**, acknowledging¶ that energy regimes are only part of larger institutional formations that organize political and economic power. It is true that the political economy of¶ energy is only a component of systemic power in the modern order, but **it**¶ **hardly follows that pragmatism toward energy policy** and politics **is the reasonable social response**. Advocates of energy strategies associate their contributions with distinct pathways of social development and define the choice¶ of energy strategy as central to the types of future(s) that can unfold. Therefore, **acceptance of appeals for pragmatist assessments of energy proposals**,¶ **that hardly envision incremental consequences**, would **indulge a form of self-deception rather than represent a serious discursive position**.¶ An extensive social analysis of energy regimes of the type that Mumford¶ (1934; 1966; 1970), Nye (1999), and others have envisioned is overdue. The¶ preceding examinations of the two strategies potentiate conclusions about¶ both the governance ideology and the political economy of modernist energy transitions that, by design, leave modernism undisturbed (except, perhaps, for its environmental performance).¶ The Technique of Modern Energy Governance¶ While moderns usually declare strong preferences for democratic governance, their preoccupation with technique and efficiency may preclude the¶ achievement of such ambitions, or require changes in the meaning of democracy that are so extensive as to raise doubts about its coherence. A veneration¶ of technical monuments typifies both conventional and sustainable energy¶ strategies and reflects a shared belief in technological advance as commensurate with, and even a cause of, contemporary social progress. The modern¶ proclivity to search for human destiny in the march of scientific discovery¶ has led some to warn of a technological politics (Ellul, 1997a, 1997b, 1997c;¶ Winner, 1977, 1986) in which social values are sublimated by the objective¶ norms of technical success (e.g., the celebration of efficiency in all things). In¶ this politics, technology and its use become the end of society and members¶ have the responsibility, as rational beings, to learn from the technical milieu¶ what should be valorized. An encroaching autonomy of technique (Ellul,¶ 1964: 133 – 146) replaces critical thinking about modern life with an awed¶ sense and acceptance of its inevitable reality.¶ From dreams of endless energy provided by Green Fossil Fuels and Giant¶ Power, to the utopian promises of Big Wind and Small-Is-Beautiful Solar,¶ technical excellence powers modernist energy transitions. Refinement of technical accomplishments and/or technological revolutions are conceived to¶ drive social transformation, despite the unending inequality that has accompanied two centuries of modern energy’s social project. As one observer has¶ noted (Roszak, 1972: 479), the “great paradox of the technological mystique¶ [is] its remarkable ability to grow strong by chronic failure. While the treachery of our technology may provide many occasions for disenchantment, the¶ sum total of failures has the effect of increasing dependence on technical¶ expertise.” **Even the vanguard of a sustainable** energy **transition seems swayed**¶ **by** the magnetism of **technical acumen, leading to the result that enthusiast**¶ **and critic alike embrace a strain of technological politics**.¶ Necessarily, the elevation of technique in both strategies to authoritative¶ status vests political power in experts most familiar with energy technologies¶ and systems. Such a governance structure derives from the democratic-authoritarian bargain described by Mumford (1964). Governance “by the people”¶ consists of authorizing qualified experts to assist political leaders in finding¶ the efficient, modern solution. In the narratives of both conventional and¶ sustainable energy, citizens are empowered to consume the products of the¶ energy regime while largely divesting themselves of authority to govern its¶ operations.¶ Indeed, systems of the sort envisioned by advocates of conventional and¶ sustainable strategies are not governable in a democratic manner. Mumford¶ suggests (1964: 1) that the classical idea of democracy includes “a group of¶ related ideas and practices... [including] communal self-government... unimpeded access to the common store of knowledge, protection against arbitrary external controls, and a sense of moral responsibility for behavior that¶ affects the whole community.” Modern conventional and sustainable energy¶ strategies invest in external controls, authorize abstract, depersonalized interactions of suppliers and demanders, and celebrate economic growth and¶ technical excellence without end. Their social consequences are relegated in¶ both paradigms to the status of problems-to-be-solved, rather than being¶ recognized as the **emblems of modernist politics**. As a result, modernist democratic practice becomes imbued with an authoritarian quality, which “deliberately eliminates the whole human personality, ignores the historic process,¶ [and] overplays the role of abstract intelligence, and makes control over¶ physical nature, ultimately control over man himself, the chief purpose of¶ existence” (Mumford, 1964: 5). Meaningful democratic governance is willingly sacrificed for an energy transition that is regarded as scientifically¶ and technologically unassailable.¶ **Triumphant Energy Capitalism**¶Where the power to govern is not vested in experts, it is given over to¶ market forces in both the conventional and sustainable energy programs. Just¶ as the transitions envisioned in the two paradigms are alike in their technical¶ preoccupations and governance ideologies, they are also alike in their political-economic commitments. Specifically, modernist energy transitions operate in, and evolve from, a capitalist political economy. Huber and Mills (2005)¶ are convinced that conventional techno-fixes will expand productivity and¶ increase prosperity to levels that will erase the current distortions of inequality. Expectably, conventional energy’s aspirations present little threat to the¶ current energy political economy; indeed, the aim is to reinforce and deepen¶ the current infrastructure in order to minimize costs and sustain economic¶ growth. The existing alliance of government and business interests is judged¶ to have produced social success and, with a few environmental correctives¶ that amount to the modernization of ecosystem performance, the conventional energy project fervently anticipates an intact energy capitalism that¶ willingly invests in its own perpetuation.¶ While advocates of sustainable energy openly doubt the viability of the¶ conventional program and emphasize its social and environmental failings,¶ there is little indication that capitalist organization of the energy system is¶ faulted or would be significantly changed with the ascendance of a renewables-based regime. The modern cornucopia will be powered by the profits of a¶ redirected market economy that diffuses technologies whose energy sources¶ are available to all and are found everywhere. The sustainable energy project,¶ according to its architects, aims to harness nature’s ‘services’ with technologies and distributed generation designs that can sustain the same impulses of¶ growth and consumption that underpin the social project of conventional¶ energy. Neither its corporate character, nor the class interests that propel¶ capitalism’s advance, are seriously questioned. The only glaring difference¶ with the conventional energy regime is the effort to modernize social relations with nature.¶ In sum, conventional and sustainable energy strategies are mostly quiet¶ about matters of concentration of wealth and privilege that are the legacy of¶ energy capitalism, although both are vocal about support for changes consistent with middle class values and lifestyles. We are left to wonder why such¶ steadfast reluctance exists to engaging problems of political economy. Does¶ it stem from a lack of understanding? Is it reflective of a measure of satisfaction with the existing order? Or is there a fear that critical inquiry might¶ jeopardize strategic victories or diminish the central role of ‘energy’ in the¶ movement’s quest?¶ **Transition without Change: A Failing Discourse**¶After more than thirty years of contested discourse, the major ‘energy¶ futures’ under consideration appear committed to the prevailing systems of¶ governance and political economy that animate late modernity. The new¶ technologies—conventional or sustainable—that will govern the energy sector¶ and accumulate capital might be described as centaurian technics¶ 21¶ in which¶ the crude efficiency of the fossil energy era is bestowed a new sheen by high¶ technologies and modernized ecosystems: capitalism without smoky cities,¶ contaminated industrial landscapes, or an excessively carbonized atmosphere.¶ Emerging energy solutions are poised to realize a postmodern transition¶ (Roosevelt, 2002), but their shared commitment to capitalist political economy¶ and the democratic-authoritarian bargain lend credence to Jameson’s assessment (1991) of postmodernism as the “cultural logic of late capitalism.”¶ Differences in ecological commitments between conventional and sustainable energy strategies still demarcate a battleground that, we agree, is¶ important—even fundamental. But so also are the common aspirations of the¶ two camps. Each sublimates social considerations in favor of a politics of¶ more-is-better, and each regards the advance of energy capitalism with a¶ sense of inevitability and triumph. Conventional and sustainable energy¶ visions equally presume that a social order governed by a ‘democratic’ ideal¶ of cornucopia, marked by economic plenty, and delivered by technological¶ marvels will eventually lance the wounds of poverty and inequality and start¶ the healing process. Consequently, silence on questions of governance and¶ social justice is studiously observed by both proposals. Likewise, both agree¶ to, or demur on, the question of capitalism’s sustainability.¶ 22¶ Nothing is said¶ on these questions because, apparently, nothing needs to be.¶ If the above assessment of the contemporary energy discourse is correct,¶ then the enterprise is not at a crossroad; rather, it has reached a point of¶ acquiescence to things as they are. Building an **inquiry into energy as a social**¶ **project will require** the recovery of a **critical voice that can interrogate**, rather¶ than concede, **the discourse’s current moorings in technological politics and**¶ capitalist **political economy**. A fertile direction in this regard is to investigate¶ an energy-society order in which **energy systems evolve in response to social**¶ **values** and goals, **and not simply according** to the dictates of technique,¶ **prices**, or capital. Initial interest in renewable energy by the sustainability¶ camp no doubt emanated, at least in part, from the fact that its fuel price is¶ non-existent and that capitalization of systems to collect renewable sources¶ need not involve the extravagant, convoluted corporate forms that manage¶ the conventional energy regime. But forgotten, or misunderstood, in the attraction of renewable energy have been the social origins of such emergent¶ possibilities. Communities exist today who address energy needs outside the¶ global marketplace: they are often rural in character and organize energy¶ services that are immune to oil price spikes and do not require water heated to¶ between 550º and 900º Fahrenheit (300º and 500º Celsius) (the typical temperatures in nuclear reactors). No energy bills are sent or paid and governance¶ of the serving infrastructure is based on local (rather than distantly developed¶ professional) knowledge. Needless to say, sustainability is embodied in the¶ life-world of these communities, unlike the modern strategy that hopes to¶ design sustainability into its technology and economics so as not to seriously change its otherwise unsustainable way of life.¶ Predictably, modern society will underscore its wealth and technical acumen as evidence of its superiority over alternatives. But smugness cannot¶ overcome the fact that energy-society relations are evident in which the bribe¶ of democratic-authoritarianism and the unsustainability of energy capitalism¶ are successfully declined. In 1928, Mahatma Gandhi (cited in Gandhi, 1965:¶ 52) explained why **the democratic-authoritarian bargain** and Western capitalism **should be rejected:**¶God forbid that India should ever take to industrialization after the manner of the¶ West. The economic imperialism of a single tiny island kingdom (England) is today¶ keeping the world in chains. If an entire nation of 300 million took to similar economic exploitation, **it would strip the world bare** like locusts. Unless the capitalists of¶ India help to avert that tragedy by becoming trustees of the welfare of the masses and¶ by devoting their talents not to amassing wealth for themselves but to the service of¶ the masses in an altruistic spirit, they will end either by destroying the masses or¶ being destroyed by them.¶ As Gandhi’s remark reveals, social inequality resides not in access to electric¶ light and other accoutrements of modernity, but in a world order that places¶ efficiency and wealth above life-affirming ways of life. This is our social¶ problem, our energy problem, our ecological problem, and, generally, our¶ political-economic problem.¶ The challenge of a social inquiry into energy-society relations awaits.

### 2nc overview

#### Drives inequality—their ethical frame for managing conflict is unethical

**Hintjens 7** [Helen Hintjens is Lecturer in the Centre for Development Studies, University of Wales, “MDF Understanding Development Better,” http://udb.global-connections.nl/sites/udb.global-connections.nl/files/file/2923317.051%20-%20Position%20Paper%20Helen%20Hintjens.pdf]

From Johan Galtung, famous Norwegian peace ‘guru’, still alive and heads up TRANSCEND University on-line, has been working since 1960s on showing that violence is not OK. His Ghandian approach is designed to convince those who advocate violent means to restore social justice to the poor, that he as a pacifist does not turn a blind eye to social injustices and inequality. He extended therefore our understanding of what is violent, coercion, force, to include the economic and social system’s avoidable injustices, deaths, inequalities. Negative peace is the absence of justice, even if there is no war. Injustice causes structural violence to health, bodies, minds, damages people, and must therefore be resisted (non-violently). Positive peace is different from negative (unjust and hence violent) peace. Positive peace requires actively combating (struggling peacefully against) social injustices that underpin structural violence. Economic and social, political justice have to be part of peacebuilding. This is the mantra of most NGOs and even some agencies (we will look later at NGO Action Aid and DFID as examples). Discrimination has to end, so does the blatant rule of money, greater equality is vital wherever possible. All of **this is the opposite of neo-liberal recipes** for success, which in Holland as in Indonesia, tolerate higher and higher levels of social inequality in the name of efficiency. **Structural violence kills far more people than warfare –** for example one estimate in DRC is that 4 million people have been killed in war since 1998, but NGOs estimate that an additional 6 million people have died in DRC since then, from disease, displacement and hunger, bringing the total to an unthinkable 10 million of 90 million est. population. “**Since there exists far more wealth in the world than is necessary to address** the main **economic** causes of structural **violence, the real problem is one of priorities**”…p. 307 “**Structural violence…is neither natural nor inevitable**”, p. 301 (Prontzos).

**Reduce large problems to the smallest visible component is a bad algorithm**

**Scheer 7 –** Member of the German Parliament, President of the European Association for Renewable Energy EUROSOLAR, Chairman of the World Council for Renewable Energy WCRE

(Hermann, Energy Autonomy: The economic, social, and technological case for renewable energy pg 20, dml)

One of the consequences of starting from false premises is that discussions end up referring only to a section of the total problem, that guidelines for action are developed relating only to that part of the overall picture, and that these guidelines are subordinated to all other problems – so that one loses sight of solutions to other problems. These **patterns of reducing large problems to their smallest components pervade the energy debate**. If this debate is mainly conducted from the viewpoint of climate threats caused by fossil energy emissions, the dangers of nuclear energy and questions about energy security are pushed into the background. If it is mainly conducted from the viewpoint of nuclear dangers, this then confines perceptions about the dangers of energy usage. If it is conducted solely from the viewpoint of depleting oil stocks, this will cloud awareness of potential dangers arising from other fossil energy sources and from nuclear energy.

### bagwati

#### We control uniqueness—it’s an inevitable outcome of the way we conduct globalization

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Contrary to much official rhetoric, these problems are not being overcome. The number of chronically undernourished people, for instance, has risen since the 1996 World Food Summit in Rome where the world’s governments promised to halve it by 2015. Reported at 788 million in 1996, this number has in 2009 broken above 1 billion for the first time in human history.¶ **A key driver** of the persistence of severe poverty is rising global inequality. While the top five percent of the world’s population increased its share of global household income from 42.9 to 46.4 percent in the 1988–2005 period, the share of the poorest quarter declined by a third from 1.16 to 0.78 percent — despite all the development assistance.[1] Clearly, and unsurprisingly, **the rules of the world economy** are better aligned with the interests of the world’s affluent than with those of the poor.¶ The Task Force on Financial Integrity and Economic Development has been analyzing and fighting some important structural injustices in our global financial system, calling attention, for instance, to how corporate tax evasion in developing countries is facilitated through lax accounting standards for multinational corporations. Since they are not required to do country-by-country reporting, such corporations can easily manipulate transfer prices among their subsidiaries to concentrate their profits where they are taxed the least. As a result, they may report little to no profits in the countries in which they extract, manufacture or sell goods or services, having their worldwide profits taxed instead in some tax haven where they only have a paper presence. Task Force member Global Financial Integrity (GFI) estimates that, during the 2000–2008 time period, trade mispricing deprived developing countries of US$382.6 – US$405 billion per annum.¶ Even more important, as seen over the last year, existing rules have allowed banks to accept for private depositfunds from public officials in developing countries. The funds found stashed by Gaddafi in various accounts exceed the annual GDP of Libya and are clearly proceeds of corruption. This type of complicity could easily be avoided: banks are already under strict reporting requirements with regard to funds suspected of being related to terrorism or drug trafficking. Yet many banks still eagerly accept and manage embezzled funds — and legally so, with secrecy laws ensuring that their banks remain attractive for such illicit deposits. GFI estimates that developing countries have lost an average of $342- 404.7 billion annually during the 2000–2008 period due to leakages via bankingsystems—more than four times the amount they have received in official development assistance. The impact of this financial drain on the livelihood of the poor is magnified by the effects of corruption on the quality of governance.

#### The books are cooked

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In 2005, the World Bank claimed that poverty had fallen further. The Bank asserted that ¶ “the number of people living on less than US$1 a day declined from 1.5 billion (40 ¶ percent of the population) in 1981, to 1.2 billion (28 percent) in 1990, and 1.1 billion (21¶ percent) in 2001.”¶ 25¶ Others associated with the World Bank have made similar claims.¶ 26¶ In “How Have the World’s Poorest Fared since the Early 1980s?”, for instance, Shaohua¶ Chen and Martin Ravallion state that the number of poor people has declined by “almost ¶ 400 million” between 1981 and 2001.27¶ Today the World Bank poverty database tells us that, on the US$1 a day poverty ¶ line, the number of people in poverty fell by more than 22% (from 40.36% of the world’s ¶ population in 1981 to 17.72% of the world’s population in 2004).¶ 28¶ According to the ¶ World Bank’s US$2 a day poverty line, the database reports that the number of people in¶ poverty fell by about 20% (from 67.13% of the world’s population in 1981 to 47.27% of¶ the world’s population in 2004).¶ 29¶ Unfortunately, the Bank’s new method of calculating poverty lines cannot support ¶ such comparisons. The World Bank’s method of measuring poverty changed in the late ¶ 1990’s.¶ 30¶ To see the effect of this change, consider the 1993 poverty rates using the new ¶ and old methodologies: ¶ Table 1. Poverty estimates in 1993 as determined by new and old World Bank ¶ methodology31¶ ¶ We need not arbitrate between these different ways of measuring poverty here.¶ 32¶ Both ¶ methods of measuring poverty share some common problems. ¶ The Bank relies on PPP measures to convert country estimates of income poverty ¶ into a common currency. This is problematic. The main sources of PPP measures are the ¶ Penn World Tables (PWT) and the International Comparison Project (ICP). These ¶ measures are based on surveys with inadequate coverage. Only 63 countries participated ¶ in the 1985 ICP.¶ 33¶ China did not participate at all in the ICP surveys until 2005 and India¶ did not participate between 1985 and 2005.¶ 34¶ Since China and India account for about a ¶ third of the world’s population, the above estimates of world poverty are quite ¶ uncertain.¶ 35¶ ¶ Another problem is that the most common PPP measures make it seem like the ¶ poor are doing better than they actually are. So, using these measures to estimate poverty ¶ rates makes it seem like there are fewer poor people in the world than there are. To see ¶ how the problem arises, consider how PPP is calculated on the most common (GearyKhamis) method. The Geary-Khamis method essentially averages the international price ¶ differentials across all commodities.¶ 36¶ This method weights “each commodity in ¶ proportion to its share in international consumption expenditure,” essentially estimating ¶ purchasing power over an international “basket” of goods and services.¶ 37¶ Unfortunately, ¶ this “basket” does not represent the “basket” of goods and services the poor purchase. It ¶ contains services and other non-tradables that the poor do not buy – the poor primarily ¶ purchase food.¶ 38¶ Services and “nontradables” are relatively cheaper in developing¶ countries.¶ 39¶ This implicitly inflates the assessed purchasing power of the poor in ¶ developing country currencies. Consider the following illustrative graph:¶ 40¶ Graphs 2 and 3: World Consumption 1950 and the Poor’s Consumption 1950-2008 ¶ Suppose the first graph represents the world’s consumption “basket” on the basis of ¶ which the PPP estimates are made. The second graph represents the “basket” of ¶ commodities actually purchased by the poor. Services make up more of the “basket” on ¶ the basis of which PPP estimates are made. Since services are relatively cheaper in poor ¶ countries this makes it seem like the poor’s currency will go further than it does for ¶ purchasing the things the poor purchase. Food makes up less of the world’s consumption ¶ “basket” than it does of the poor’s consumption “basket.”¶ 41¶ Food is cheaper in developing ¶ countries but it is not as cheap as PPP suggest. To see this, we can compare prices in ¶ some of the poorest countries included in the 1985 ICP survey with world prices. Doing ¶ so, we find that prices for basic food stuffs “Breads and Cereals” averaged 111 percent ¶ higher than consumer prices generally.¶ 42¶ This means it is relatively more expensive to ¶ buy a “basket” of food than it is to buy the world’s consumption “basket” in developing¶ countries (when the “baskets” are compared with similar “baskets” in developed ¶ countries). Again, since the poor primarily purchase food, but PPP exchange rates are ¶ based on the world’s consumption “basket,” these exchange rates make it seem that the ¶ poor are doing better than they are. Estimates of PPP exchange rates using only the ICP ¶ 1985 or 1993 data for foods (or “breads and cereals”) raise national poverty lines of poor ¶ countries 30-40%.¶ 43¶ This problem makes it particularly hard to get accurate estimates of ¶ the number of people who are poor in the real world because many people have incomes ¶ close to the poverty lines.¶ 44¶ “Recent research on China suggests that a 10% increase in ¶ the line brings a roughly 20% increase in the poverty headcount.”¶ 45¶ And when China’s ¶ prices were re-evaluated last year the number of Chinese below the World Bank’s ¶ poverty line increased by two-thirds.¶ 46¶ A related problem stems from the fact that the rich have started to consume more ¶ services in recent years. This changes the international “basket” of goods underlying the ¶ most common PPP comparisons. The “basket” now contains more services which are ¶ relatively cheaper in poor countries.¶ 47¶ Over time it, thus, **seems that the poor have gotten** ¶ **richer simply as a result of a change in the consumption patterns of the rich.**¶48¶ Compare ¶ these graphs: ¶ Graphs 5 and 6: World Consumption 1950 and World Consumption 2008 ¶ The poor’s consumption has not changed much since 1950 (they still primarily purchase ¶ food). So let us suppose that the following graph represents the “basket” of goods the ¶ poor purchased in both 1950 and 2008: ¶ Graph 7: The Poor’s Consumption 1950-2008 ¶ Over time the mismatch between the consumption patterns of the poor and the ¶ consumption patterns of the rest of the world has grown because rich people are buying ¶ more services.¶ 49¶ Again, services are relatively cheaper in poor countries.¶ 50¶ This makes it ¶ seem like the poor’s currency will go even further in 2008 than it did in 1950 for ¶ purchasing the things the poor purchase. So, when poverty estimates rely on these PPP ¶ measures they suggest that there are fewer poor people in the world now than there used ¶ to be. But they say that poverty is declining just because poor peoples’ currencies could¶ purchase a lot of services relatively cheaply. Poor people, on the other hand, cannot ¶ spend much of their money on services. To survive, they have to spend most of their ¶ money on food.¶ 51

### owen

**Heg causes more conflict than it solves- historical data proves**

**Human Security Report ’10** ( Embargoed until 2 December 2010, 11:00am EST Human Security Report Project. Human Security Report 2009/2010: The Causes of Peace and the Shrinking Costs of War. New York: Oxford University Press, 2011.

**As with other realist claims, there are reasons for skepticism about the peace through preponderance thesis**. First, if it were true, we might expect that the most powerful states would experience the least warfare. However, since the end of World War II, the opposite has in fact **been the case**. Between 1946 and 2008, the four countries that had been involved in the greatest number of international conflicts were France, the UK, the US, and Russia/USSR.19 Yet, these were four of the most powerful conventional military powers in the world— and they all had nuclear weapons. The fact that **major powers tend to be more involved in international conflicts** than minor powers is not surprising. Fighting international wars requires the capacity to project substantial military power across national frontiers and often over very long distances. Few countries have this capacity; major powers have it by definition.

#### Wars increasing—disproves their theory—and neolib doesn’t solve it

**Hadley**, History Today editor, **2011**

(Kathryn, “Alarming increase in wars”, 7-12, http://www.historytoday.com/blog/2011/07/alarming-increase-wars, DOA: 7-4-12, ldg)

New research by Professors Mark Harrison from the University of Warwick and Nikolaus Wolf from Humboldt University has revealed that between 1870 and 2001, the frequency of wars between states increased steadily by 2% a year on average. Between 1870 and 1913, the frequency of ‘pairwise’ conflicts (the numbers of pairs of countries involved in conflicts) increased on average by 6% per year. The frequency of wars increased by 17% per year in the period of the First and Second World Wars, and by 31% per year during the Cold War. In the 1990s, the frequency of wars between states rose by 36% per year.¶ Professor Mark Harrison explained how: ‘**The number of conflicts has been rising** on a stable trend. Because of two world wars, the pattern is obviously disturbed between 1914 and 1945 but remarkably, after 1945 the frequency of wars resumed its upward course on pretty much the same path as before 1913.’¶ The graph below illustrates this increase in pairwise conflicts. It only includes wars between states and does not include civil wars. Conflicts range from full-scale shooting wars and uses of military force to displays of force (sending warships and closing borders, for example). Although Harrison and Wolf’s study does not measure the intensity of violence, it reflects the readiness of governments to settle disputes by force.¶ According to Harrison and Wolf, this increase in the frequency of pairwise conflicts can be explained by two principal factors: economic growth and the proliferation of borders. The number of countries has thus almost quadrupled since 1870, rising from 47 countries in 1870 to 187 in 2001.¶ Harrison continued: ‘More pairs of countries have clashed because there have been more pairs. This is not reassuring: it shows that there is a close connection between wars and the creation of states and new borders.’¶ Looking specifically at the countries that have initiated disputes, the study shows that there is no tendency for richer countries (defined by a higher GDP per head) to make more frequent military interventions than others. The readiness to engage in war is spread relatively uniformly across the global income distribution.¶ Thinkers of the Enlightenment believed, and many political scientists still believe today, that the political leaders of richer and more democratic countries have fewer incentives to go to war. Over the course of the twentieth century, on the whole, countries have become richer, more democratic and more interdependent. Yet, Harrison and Wolf’s study disproves the theory that as GDP increases countries are less likely to engage in warfare.

### mead

**Economic predictions fail—take it from this guy**

**Mead 2010** – Kissinger senior fellow for U.S. foreign policy at the Council on Foreign Relations, teaches American foreign policy at Yale (5/24, Walter Russell, The American Interest, "The top ten lessons of the global economic meltdown", http://blogs.the-american-interest.com/wrm/2010/05/24/the-top-ten-lessons-of-the-global-economic-meltdown/, WEA)

5. Nobody really understands the world economy.

Sad, but true. For all the math and the theoretical models, economics remains an intellectual discipline rather than a predictive science. That is unlikely to change. Just as all the computer models in the world can’t tell you what the stock market will do tomorrow, all the world’s economists working together can’t tell you when the next crisis will come — or what you can do to avoid it. At any given point of time there will be economists predicting a crash and economists predicting good times along with every variant in between; some of them are bound to be right but so far this looks more like timing and luck than the repeatable and testable result of demonstrably better methods. The economics profession is full of dogmatic and pompous heretic hunters of all stripes, but as a group they are no better collectively at prediction than a similarly dogmatic and contentious group of medieval clerics. This doesn’t mean that economics is bunk (any more than theology is bunk); systematic and rigorous reflection on human economic activity yields many useful insights and an education in basic economic ideas remains an essential piece of intellectual equipment for any serious person.

Economic outcomes remain hard to predict not because economists are stupid (they aren’t, by and large) but because the world economy is continually in flux. Facts change; China rises, new industries emerge, under the influence of new economic ideas, central bankers and investors change the way they behave. Investors and entrepreneurs have mood swings: too optimistic in 2007, too pessimistic in 2008. All this change feeds back into the world system in unpredictable ways. Economics can help us understand what is happening and give us more sophisticated tools for investigating the unknown — but it cannot protect us from uncertainty and risk. The “unknown unknowns” will always be with us.

This means, among other things, that we are no closer to eliminating panics and crashes than the Dutch were in the wake of the Tulip Bubble.

6. That goes double for financial markets.

Financial markets are even more volatile than the real economy. Economists predict, with varying but rarely satisfying results, the behavior of the real economy. Few are so foolish as to predict the behavior of financial markets (and those who do often lose a lot of money). There are good reasons for this. Psychology of course plays a major role in short term fluctuations, and crowd psychology is so far at least largely beyond our power to predict. But there is more. Change in financial markets has been accelerating dramatically with the improvement of computers, communications and software. The avalanche of new securities products during the last twenty years transformed the way global financial markets work. The crash set this process back for a while, but it is sure to resume. Both borrowers and lenders are (and should be) always on the lookout for cheaper, more efficient ways to manage their portfolios and get the maximum results for the minimum cost. Financial firms are, and should be, ready to help make this happen. Over time, new securities products, larger trading volumes and complex hedging and trading programs change the nature of the financial marketplace. There are new risks and new interconnections that, increasingly, neither regulators nor market participants fully understand. As time passes after a crash, both regulators and market participants become more confident that the system is working, and there is a natural tendency for risk tolerance to increase even as risks are becoming harder to measure and price. Sooner or later this leads to a new crash as unexpected vulnerabilities emerge; at that point everyone from regulators to speculators recalibrates and the predictably unpredictable cyclical process restarts.

Starting with the Dutch Tulip Bubble we’ve had about 350 years of financial crashes and panics. They are unlikely to stop anytime soon — and each one that comes will take most people by surprise.

### solar links

#### Their approach treats electricity as a commodity in need of proper allocation—this mindset perpetuates inequality—only a prior critical approach can solve

**Mun and Byrne 2003** – Center for Energy and Environmental Policy, University of Delaware (Yu-Mi and John, “Rethinking reform in the electricity sector: Power liberalisation or energy transformation?”, in “Electricity Reform: Social and Environmental Challenges”, ed: Njeri Wamukonya)

Starting from the early 1990s, a set of institutional reforms – including¶ unbundling, privatisation of ownership, and the introduction¶ of competition into the generation sector – began to be promoted as a¶ global solution to the problems of the electricity industry (IEA 2001;¶ Littlechild 2001; Patterson 1999; Joskow 1999; Bacon 1995). The¶ concurrent movements of unbundling, private ownership and¶ competition (or at least demonopolisation), which hereinafter we will¶ call power liberalisation, aim to rationalise the sector’s development¶ by treating electricity as a commodity in need of optimal allocation.¶ Advocates maintain that governing the electricity industry according¶ to market dynamics, rather than socio-political considerations,¶ promises to result in its more efficient operation (Bacon & Besant-¶ Jones 2001; IEA 2001; World Bank 1999; International Chamber of¶ Commerce 1998; Joskow 1998; World Bank 1993). Some further¶ promise important social and environmental benefits if the sector is¶ liberalised (Lovei & Gentry 2002; Powell & Starks 2000; Joskow¶ 1998; see also Smeloff & Asmus 1997, especially chapter 4).¶ The experience with power liberalisation around the world, however,¶ has frequently included **price hikes**, unreliable service, employment¶ loss, and reduced access, particularly for the poor (TNI 2002;¶ Coyle 2000; Higley 2000; Hall 1999). This chapter offers an analysis¶ of the initiative based on what are argued to be commonly embraced¶ tenets and commonly witnessed results. The analysis is informed by a¶ theoretical distinction between commodity and commons as platforms¶ for energy policy development (see Byrne and Mun (2001) for¶ an earlier discussion of this distinction). Below, we argue that power¶ liberalisation follows a commodification agenda that is socially, politically,¶ economically and environmentally problematic. As an alternative, we propose an energy policy commons approach that can lead¶ to transformation of the sector in a manner that is responsive to the¶ aims of democratic, equitable and sustainable development.¶ 2. Anatomy of power liberalisation: Historical context, ideology, and agenda¶ 2.1 Historical context¶ For nearly a century, electricity around the world was typically produced¶ by vertically integrated utilities, which operated facilities for all¶ three stages of electricity service: generation, transmission, and distribution.¶ In many cases, utilities were state-owned monopolies.¶ When private ownership was present, the companies nonetheless operated¶ as monopolies in designated franchise areas regulated by governments¶ that set rates and oversaw investments (Patterson 1999).¶ The involvement of the public sector in the electricity industry is¶ partly explained by the sector’s technical and economic evolution. As¶ utilities pursued economies of scale both in supply and in demand,¶ electricity systems became highly centralised, large-scale technological¶ networks (see Hughes 1984; Messing et al 1979). Creating such a¶ network is a highly capital-intensive project with long payback periods¶ (but significant society-wide benefits), and, as a result, has required¶ public sector oversight of electricity supply in many countries.¶ Even where private firms were active from the outset in the electricity¶ business (e.g., the USA, Germany, and Japan), governments have¶ played an important role in building electric networks – sometimes as¶ a supporter of, and at other times as a competitor to, private power¶ (Patterson 1999).¶ While electricity systems built by public and/or private monopolies¶ made large-scale production and consumption of electricity possible¶ in many parts of the world, their operation also created serious¶ problems. For example, mega-projects such as large-scale hydro¶ dams, nuclear reactors and coal-fired power plants have become¶ sources of serious ecological degradation and have crowded out public¶ spending on other social projects, especially in developing countries¶ (Durosomo 1994). In many developing countries, a phenomenon¶ known as ‘electricity poverty’ emerged in which urban elites enjoyed¶ service at the expense of large majorities of the un- or under-served¶ rural poor. These problems were exacerbated by the **undemocratic**¶ mode of governance often characterising **electricity decision-making**.¶ Too often, important decisions regarding electricity supply were made¶ by a closed circle of technical experts, government bureaucrats, and¶ large corporate clients. Such a governance structure, coupled with the¶ monopoly status of utilities, resulted in electricity industries developing¶ into powerful organisations with their own political and economic¶ agendas. In the absence of effective public supervision, moreover,¶ electric utilities in many countries became a source of corruption,¶ cronyism and pork-barrel politics rather than guardians of the public¶ interest (Patterson 1999).¶ A series of proposals during the late 20th century sought to address¶ such issues, as well as capital shortages suffered by developing¶ country public sectors. Power liberalisation has differed by country,¶ but common elements of an agenda for sectoral change can be identified¶ (IEA 2001; Littlechild 2001; Rosen et al 2000):¶ • Vertically integrated utilities are broken up, either by sale of generating¶ plants, or by placing generation assets in separate unregulated¶ generating companies that remain utility subsidiaries.¶ • Markets are created into which the generating companies can sell,¶ and from which others can buy.¶ • Capital investment in the sector is increasingly decided by market¶ actors and forces.¶ Reforms in the institutional framework of the electricity industry¶ that are associated with power liberalisation are justified by advocates¶ on several grounds. It is argued by many that the merits of monopoly¶ in electricity generation have disappeared because economies of scale¶ associated with centralised power plants have been exhausted (see¶ Joskow 1998; Flavin & Lessen 1994; Kahn 1991). Continued monopoly¶ supply under these circumstances would only hinder the introduction¶ of new technologies (Hirsh & Serchuk 2000). Others point to the¶ fact that governments in many countries are experiencing financial¶ strain in mobilising capital for investments in electricity infrastructure¶ (see World Bank 1999 and 1993).¶ Where state ownership is not prevalent, state interventions in¶ electricity price-setting and capacity planning are blamed for ‘distorting’¶ markets, thus creating artificially low prices (in developing countries)¶ or high prices (industrial countries). In both cases, sub-optimal¶ conditions for electricity supply and demand are possibly created¶ (IEA 1999a; IEA 1999b). Additionally, some suggest that pressures¶ are escalating from increasingly globalised capital sectors for the electricity¶ industry to be more open to new investments, competition, and¶ capital mobility (see Flowers 1998; Graham 2000; Tellam 2000).¶ 2.2 Efficiency ideology¶ An almost universal justification for electricity privatisation and/or¶ the introduction of competition has been the claim that reform will¶ yield an economically more efficient sector than regulated monopoly¶ arrangements. The International Energy Agency (IEA), for example,¶ argues that electricity market competition offers significant potential¶ benefits through improved economic performance, lower prices, and¶ an expansion of choices available to consumers (IEA 1999a and¶ 1999b). Following the same line of argument, other multilateral institutions¶ such as the World Bank, the International Monetary Fund,¶ and the Asian Development Bank (ADB) also are calling for power¶ sector reform as a key condition for loans and other forms of financial¶ support (see Dubash 2002; and Tellam 2000). In this regard, power¶ liberalisation is increasingly expressed in the form of an ideology, that¶ is, a belief (with cited empirical support) in the ability for specific institutional¶ changes to create societal improvement, in this case, via¶ advances in efficiency. Key beliefs underlying this ideology include:¶ 1. the view that the private sector is more efficient than the public¶ sector in matters involving resource allocation (Lovei &¶ Gentry 2002);¶ 2. the assumption that greater competition and less regulation¶ will increase economic efficiency (Bacon & Besant-Jones¶ 2000);¶ 3. the conviction that market-oriented policies will enable the¶ electricity system to be subject to democratic pressures¶ through the choices that consumers make (Smeloff & Asmus¶ 1997); and¶ 4. the presumption that liberalisation will enhance environmental¶ quality by driving out old technologies (Lovins et al¶ 2002; Joskow 1998; Flavin & Lessen 1994) and/or by facilitating¶ ‘green’ consumerism (Wiser 1998).¶ 2.3 The agenda of power liberalisation¶ Power liberalisation aims to free electricity from the constraints of¶ public control by permitting it to be auctioned largely as a commodity.¶ As Offner (2000) points out, the policy emphasises private markets¶ and ability to pay, and regards public support and crosssubsidies¶ as sources of social and economic distortion. In other¶ words, power liberalisation is centered on an agenda of commodification¶ ‘in which progress is determined by increased social capacity to¶ produce and purchase goods and services’ (Byrne & Rich 1992: 271).¶ As explained below, commodification of electricity supply advances¶ trends toward centralisation and marketisation in not only the¶ techno-economic but also socio-political contexts that give structure¶ to the sector.¶ 2.3.1 Increasing centralisation¶ In discussing the origin of electricity restructuring, many note that¶ recent technology innovation in electricity generation has made obsolete¶ the logic of scale economies, which had earlier justified monopoly¶ status for suppliers (Fox-Penner 1997; Hunt & Shuttleworth 1996).¶ Improvements in smaller-scale, natural gas-fired, combustion technology¶ have arguably diminished the economic edge that large plants¶ once had. As a result, advocates believe that a key hurdle to supplyside¶ competition, namely, high initial capital costs to enter the market,¶ is no longer present (see Fox-Penner (1997) and Brennan et al¶ (1996) for details). In fact, power plants built by independent power¶ producers in the USA, which typically account for over 50% of new¶ capacity additions, averaged just 25 MW by 1992. Similarly, the average¶ size of utility-built plants declined from more than 600 MW in¶ the mid 1980s to an average of about 100 MW by 1992 (Flavin and¶ Lenssen 1994: 17). This trend is seen as a decisive factor in explaining¶ the rapid increase in restructuring efforts during the 1990s.¶ While it is true that smaller-scale gas turbines have played a role¶ in challenging the ‘natural’ monopoly economics in generation, this¶ does not necessarily mean that power liberalisation will lead to decentralised¶ electricity systems, in which small-scale, community-based¶ technologies flourish, and management of the electricity systems becomes¶ localised. To the contrary, centralisation is being further reinforced especially in the form of utility mergers and acquisitions, and¶ in the operation of transmission and distribution (T&D) networks.¶ For example, since wholesale competition was established in¶ 1992, the number of private utilities in the USA has shrunk dramatically¶ because of increasing merger and acquisition activity. As a result,¶ while the ten largest utilities in the USA, ranked according to¶ generation capacity, owned 36% of all investor-owned-utility generation¶ capacity in 1992, the share had increased to 51% by 2000. Evidence¶ of consolidation among the sector’s top 20 companies is even¶ more compelling. In 1992, the 20 largest companies owned 58% of¶ total investor-owned-utility generation capacity; their share had increased¶ to approximately 72% by 2000 (USA EIA 2000). British experience¶ likewise suggests that centralisation of the electricity¶ business is likely, notwithstanding advances in small-scale generation¶ technology. While the U.K originally had 12 retail supply companies¶ operating in its competitive movement, six large generation companies¶ now dominate. The 12 distribution companies created under the¶ country’s restructuring plan are also beginning to merge. As of 2002,¶ eight firms own most of the distribution business (Thomas 2002: 3).¶ For developing countries, a relatively modest number of overseas¶ companies have competed to enter their electricity markets. For example,¶ Cameroon received just foreign six bids when its market¶ opened and Mauritania and Senegal each attracted only four foreign¶ bidders in their liberalisation processes. Final participants were even¶ smaller in number (one or two) (see Wamukonya, 2003a). According¶ to a recent World Bank survey, moreover, most private investors are¶ losing interest in developing country power markets (Lamech and¶ Saeed 2002: 2). This is hardly convincing evidence that liberalisation¶ and technology change are promoting competition in the electricity¶ sectors of developing countries.¶ Power liberalisation initiatives put great emphasis on the role of¶ transmission networks as ‘common carriers’ and try to ensure ‘open¶ access’ to the transmission network by competitors. Transmission¶ operators also typically manage the bidding markets for the supply of¶ electricity when competition in generation is introduced. While the¶ language may resemble that of a ‘commons’ argument, the actual implications¶ are quite different: the transmission system is operated as a¶ ‘common’ carrier of electrons generated by large electricity companies,¶ and ‘open’ access to the transmission system is guaranteed¶ mostly to those companies and large-scale electricity consumers.¶ Rather than being used as a means to reflect economic, social and¶ environmental priorities of diverse communities connected to the¶ electric grid, T&D networks are operated mostly as highly sophisticated¶ technocratic institutions that enable the transfer of large vol¶ umes of electrons (and private gains) among a small number of sizable¶ companies. Compared to the Internet, for example, there are¶ only a modest number of participants, and their market power is substantial.¶ Centralisation of the generation business and T&D networks has¶ to do with the commodification of electricity spurred by liberalisation.¶ A key action of reform in this respect is the lifting of restrictions on¶ electricity trade. A ‘free’ market for electricity calls for competition in¶ so-called bulk power supply (i.e., the delivery of large volumes of electricity¶ to large, interconnected grids). Winning a bid in this market (at¶ regional, national and international geographies) ensures a company¶ that it can operate its plants at high capacity factors, thereby driving¶ down unit costs. Merger and acquisition activities reflect this logic.¶ Thus, even if smaller scale generation is now affordable, the generation¶ business is likely to increase in scale. Similarly, an ‘open’ market¶ depends on freer movement of electrons, which in turn requires increased¶ interconnections between existing systems over wider geographies.¶ Indeed, the extension and interconnection of transmission¶ lines to facilitate the free movement of electric commodities is commonly¶ presented as a key requirement for a more efficient electricity¶ sector. The phenomenon is also readily observed in Europe, where the¶ prospect of a multinational grid is being vigorously pushed.¶ Another important element of the further centralisation of the¶ electricity system is the concentration in ownership of electricity systems¶ on a regional and global scale. As discussed by Thomas (2002),¶ Flowers (1998) and Patterson (1999), for example, mergers and acquisitions¶ across national borders are a distinct feature of power liberalisation.¶ In fact, opening the electricity industry to global capital is¶ one of the key imperatives of power liberalisation, since its proponents¶ believe that competition among electricity suppliers and carriers¶ will generate the most efficient and optimal outcomes. Thus,¶ liberalisation is likely to expand the geographical reach of the already¶ large electricity suppliers, which will be justified under the guiding¶ logic of commodification as the necessary result of the market’s drive¶ for efficiency.¶ 2.3.2 Marketisation agenda¶ Faith in the marketplace constitutes another keystone of the policy¶ framework underlying power liberalisation. Based on neo-liberal¶ ideology that associates markets with freedom and governments with¶ repression (see Somers (2001) for a discussion of the origins of this¶ ideology), free market advocates elevate trade as the centerpiece of¶ civil society, and assign secondary status to non-market values and¶ interests. In fact, some proponents regard markets and consumerism¶ as preferable alternatives to political activism and the aggressive exercise¶ of citizenship because, arguably, society’s members can participate¶ in markets directly and individually, whereas citizens participate¶ in the polity only indirectly and collectively (Crouch et al 2001). **Such**¶ **a tendency to ‘marketise’** or ‘privatise’ **citizenship** (Somers 2001) **is**¶ **noticeable in the debate** over power liberalisation. In line with the¶ ‘Citizens’ charter’ formulated by the British government to celebrate¶ individual choice (Freedland 2001: 100), providing individual consumers¶ with ‘the right to choose’ electricity suppliers is often described¶ as equivalent to securing civil rights and ‘democratising’ the¶ electricity system (MOCIE 2001). The advocates of this view argue¶ that citizens, who hitherto had little influence in decision-making on¶ electricity policy, can now realise their preferences and values in the¶ electricity market using their power to choose and change electricity¶ suppliers (see Smeloff and Asmus 1997).¶ Based on the belief that market mechanisms are more efficient¶ than social regulation or planning, proponents of electricity restructuring¶ also argue that important public policy goals such as the promotion¶ of renewable energy can be realised by expanding consumer¶ choice. For example, ‘green pricing,’ which allows electricity companies¶ to sell renewable energy at a higher price than other power (see¶ Rabago et al (1998) and Wiser (1998) for details), has been proposed¶ as a key mechanism to make the electricity sector sustainable. Proponents¶ of green pricing base their optimism on survey results showing¶ that consumers are willing to pay more for electricity produced in an¶ environmentally friendly manner. According to a US study, however,¶ only 1-2% of consumers have actually switched to a green power provider¶ even in the states with the most successful green pricing programmes¶ (Swezey & Bird 2000). Nonetheless, liberalisation’s¶ proponents often promise a less polluting future if electricity is governed¶ by markets rather than governments.¶ 3. Contradictions in power liberalisation¶ 3.1 Economic contradictions¶ Experience with liberalisation so far has revealed that creating a¶ genuinely competitive electricity market is an extremely difficult task.¶ After initially unbundling electricity monopolies into several firms,¶ for example, many countries have seen those companies vertically¶ and horizontally reintegrate. In many cases, therefore, the result of¶ power liberalisation has been the creation of electricity oligarchies,¶ which tend to be dominated by large multinational corporations¶ (Thomas 2002).¶ The experience with California’s Power Exchange, moreover, suggests¶ that policy-making based on a belief in ‘the genius of marketplace’¶ (CPUC 1996) can lead to surprising results. For example, dayahead,¶ hour-ahead, real-time electricity markets in California succeeded¶ in boosting, rather than lowering, prices. The economic value¶ and profits of some generators such as Reliant Energy, Duke Energy,¶ and the AES Corporation improved dramatically (see Table 1), but¶ without any tangible increases in efficiency of generation. Indeed,¶ these companies largely profited from the purchase of power plants¶ that utilities in the state were required to sell under restructuring in¶ order to increase competition. The costs to California of power liberalisation¶ included high wholesale prices (reaching a monthly average¶ of 37 cents per kWh in December 20002 – more than 11 times higher¶ than the pervious year – see EIA 2001), exceptional service disruption¶ rates (CPUC 2001), the emergence of profitable ‘dirty power’¶ plants (especially beyond California’s borders) and the necessity of a¶ government bailout of the industry (which totalled $12.0 billion in¶ bond sales – see the Foundation for Taxpayer and Consumer Rights¶ (2002) for details).¶ In analysing the causes of the California electricity crisis, many¶ point out that market participants were able to ‘game’ the system to¶ maximise short-term profits (CPUC 2002). This is attributed to California’s¶ policy requiring all wholesale transactions to occur via ‘spot¶ markets’ and its restrictions on the use of long-term contracts to¶ hedge risks that would accompany market speculation. Capitalising¶ on such a market design in California and the distinctive characteristic¶ of the electricity system, namely, that demand and supply must be¶ precisely and continuously matched in real time (due to the inability¶ to store electricity), some generators withheld supply from the dayahead¶ market, and instead bid capacity into other markets in order to¶ collect high premiums for real-time energy and ancillary services¶ (FERC 2001). In essence, power generators in California created an¶ artificial scarcity of electricity and drove up prices by adjusting their¶ bidding strategies – without collusion (World Bank 2001). The ‘genius¶ of the marketplace’ (CPUC 1996), with which California entrusted¶ the management of its electricity system, ultimately provided new¶ opportunities for profit creation in the electricity sector and little else.¶ Under such circumstances, the claim that markets produce efficient¶ allocations of resources is problematic. Why would one presume¶ that rapid increases in profit collected by energy traders who withheld,¶ rather than expanded, capacity is efficient? Why would the need¶ for billions in bond sales to bail out the industry and the occurrence¶ of rotating blackouts be regarded as efficient? In reply, some market¶ proponents have argued that rate caps on residential consumer bills¶ doomed the California policy to failure (e.g., Berg et al 2001). But is it¶ reasonable to argue that results would have been efficient if the utility¶ sector could have passed on 400% increases in wholesale prices to¶ residential users? Why would the transfer of billions of dollars in¶ profits to energy traders by residences count as an efficient allocation¶ of resources? Others explain the California crisis as the consequence¶ of a flawed market design (e.g., World Bank 2001). However, this¶ begs the question. If markets require policy design to succeed, why¶ wouldn’t it be appropriate to recognise policy – and importantly, the¶ chosen aims of policy – as the key factor, rather than markets. Obviously,¶ acceptance of this point would deny markets the presumption¶ of inherent benefits. Instead, economic benefits would accrue in relation¶ to the design of market policy, thereby requiring explicit goalsetting¶ as to those who should gain how much, and how the gains¶ should be accumulated, invested, and shared.¶ Rather than relying on ‘genius’ strategies, it would perhaps be¶ more apt to argue that our policy challenge involves the creation of a¶ decision-making process that can produce a collectively valued restructuring¶ strategy. Seen in this light, markets could be tools for¶ meeting public aims, but **it would be inappropriate to use market**¶ **economics to preempt public** policy choice.¶ 3.2 Environmental contradictions¶ The impact of power liberalisation is not confined to the economic¶ realm. By subsuming societal goals under the promise of economic¶ efficiency, power liberalisation tends to leave existing environmental¶ problems unaddressed and creates new challenges in meeting sustainability¶ goals. Power liberalisation promotes an electricity system¶ that is geared toward short-term profits, compared to its monopoly¶ predecessor. While this can mean that innovation is encouraged, it¶ may also mean that a long-term public interest in sustainable alternatives,¶ such as conservation and renewable energy, can be neglected.¶ Treating electricity as a commodity drives economic actors to focus¶ on selling more kWhs – rather than providing more services with¶ fewer kWhs. For example, utility spending on demand-side management¶ programmes in the USA fell 45% between 1993 and 1998, and¶ fell 57% from projected levels (Union of Concerned Scientists 2000).¶ This is the period during which electricity restructuring was initiated¶ in the USA. Further, much of the revenue from policy tools created by¶ states during restructuring to capture public benefits (those tools include¶ system benefit charges, set asides for conservation and renewables,¶ and renewable portfolio standards) has mainly substituted for¶ funds from utility-sponsored programs, rather than expanding the¶ level of a social commitment to sustainable energy options.3¶ In the case of renewable energy investment, a dramatic reversal¶ from a steady upward trend in development has been the clear result¶ of USA restructuring. According to a recent report (Union of Concerned¶ Scientists 2000), renewable energy generation in the USA fell¶ from 66 billion kWh in 1993 to 49 billion kWh in 1998, as utilities¶ bought out contracts and shut down or reduced output from renewable¶ energy plants. While renewable energy investments are increasing¶ in Europe, growth in these options is the result of clear¶ government policies to promote renewables in an effort to reduce¶ greenhouse gases (Commission of the European Communities 2000).¶ In countries that choose to begin power liberalisation by inviting¶ the participation of independent power producers (IPPs) – a common¶ approach in developing countries as observed by APERC (2000) and¶ Hunt and Shuttleworth (1996), the situation can be worse. Many¶ countries have learned that IPPs require power purchase agreements¶ with take-or-pay clauses. Such clauses provide little incentive to improve¶ demand-side efficiency, since a country must pay a fixed fee¶ regardless of whether full use is made of the electricity supply pledged¶ by an IPP (Wagle 1997). In short, the commodification of electricity¶ tends to further divorce the value of electricity from the actual uses to¶ which it is put, thereby impeding an integrated approach to meeting¶ energy needs at least cost to both the economy and the environment.¶ Experience to date indicates that electricity commodification¶ tends to speed up, rather than slow down, the ‘race to the bottom’ in¶ terms of environmental profiles of electricity generation (Higley 2000¶ and RAGE, no date). Since prices in electricity markets do not include¶ environmental costs, older, highly polluting power plants can have¶ competitive advantages compared to other modes of power generation,¶ especially when markets become enlarged through increasing¶ interconnection of grids. In the absence of stronger environmental¶ regulations, therefore, liberalised electricity markets appear likely to¶ add to environmental harm in the search for a cheaply priced electricity¶ commodity. In fact, carbon dioxide emissions in the USA electricity¶ sector jumped 20% to 2.6 billion tons in 2000 from 2.1 billion tons¶ in 1995, exceeding the worst-case forecast of the Federal Energy¶ Regulatory Commission (FERC) for environmental impacts of power¶ liberalisation in the USA (FERC 1996). The unexpectedly high increase¶ is attributed to a cutback in energy conservation measures by¶ utilities (Carlton and Smith 2002).¶ 3.3 Political contradictions¶ While power liberalisation initiatives aim to substitute self-regulating¶ markets for political governance, the new markets have turned out to¶ be far from self-regulating. Regulatory measures needed for adequate¶ supervision of market activities have proved to be more complex than¶ those required under regulated monopoly regimes. For example, system¶ coordination – making different components of the system balanced¶ in real time in terms of voltage and frequency – has become¶ much more challenging in a liberalised market environment and¶ more sophisticated in terms of central controls than many had expected¶ (see Brennan et al (2002) for details).¶ The process of establishing regulatory agencies or other kinds of¶ controlling bodies needed for liberalised electricity markets has¶ tended to date to reinforce the authority of centralised and largely¶ autonomous organisations. These include power exchanges, independent¶ system operators, and regional transmission organisations,¶ all of which diminish the range of local decision-making and governance.¶ In the USA, for example, federal government agencies have assumed¶ much more critical roles in a liberalised electricity market.¶ Whereas state and local governments were primarily responsible for¶ the supervision of electric utilities during the era of regulated monopoly¶ regimes, FERC has recently assumed a large portion of the regulatory¶ obligation. Moreover, partly because of the complexity involved¶ in adequate management of liberalised electricity systems, technical¶ knowledge tends to be further empowered at the cost of citizen-based¶ political deliberations. Thus, local USA jurisdictions had the authority¶ to decide the balance between demand-side management and utility¶ generation until liberalisation. Now that balance is lost in the whir of¶ independent system operators and power exchange machinations¶ about transmission congestion pricing, ‘must-run’ versus ‘bidded’¶ supply, and detection of market gaming strategies.¶ Without explicit efforts to reinsert democratic principles in the¶ process of power liberalisation, electricity markets are likely to be¶ controlled by and serve the interests of already powerful economic¶ and technical entities. Nonetheless, advocates of power liberalisation¶ often de-legitimise political interventions in electricity markets, arguing¶ that societies should ‘let the market work’ (Berg et al 2001). By¶ doing so, they effectively diminish the space for public decision and¶ action and leave the market ‘open’ to the needs of special interests¶ (particularly those with large financial stakes). As a result, political¶ and regulatory bodies face increasing challenges in establishing the¶ legitimacy of interventions into market operations to protect the public¶ interest.¶ The preference under power liberalisation for individual consumer¶ choice to political intervention is fundamental to the claim that¶ electricity decision-making is more democratic with restructuring.¶ However, consumer choice of electricity suppliers or products is only¶ one of the many choices that societies have traditionally exercised¶ with regard to electricity. In fact, many values important to a society’s¶ electricity future are decided outside the context of consumer choice¶ of electricity providers. Universal service, environmental sustainability,¶ social equity, and democratic governance of infrastructure investment¶ are examples of commitments that societies have often¶ embraced concerning the operation of their power sectors. **By promoting**¶ **neo-liberal ideology**, which places individual above sociopolitical¶ choice, **power liberalisation sizably diminishes the space for**¶ collective, **deliberative decision-making**. Even in cases where consumer¶ choice matters, marketisation of citizenship ultimately tips the¶ balance toward more powerful economic interests, since one dollar is¶ one vote in markets.¶ 3.4 Social contradictions¶ Some researchers have raised concerns that power liberalisation¶ would further entrench the unequal power relationship in the electricity¶ sector, aggravating inequity between producers and consumers,¶ and between affluent and poorer consumers (Coyle 2000). For¶ instance, Ratepayers for Affordable Green Energy (RAGE), a USA¶ consumer group, notes that even if efficiency improvements lowering¶ the cost of electricity generation were to occur with liberalisation, the¶ benefit would not necessarily be distributed equitably. Because large¶ energy consumers may be able to negotiate low prices with competitive¶ providers, residential and small business consumers could experience¶ price discrimination (due to their comparatively lower price¶ elasticity) and pay higher unit prices (RAGE no date). Based on the¶ experience in Brazil, Silva (2000) also reports that because of the uneven¶ contest for low-cost electricity generation, the price of electricity¶ has risen by nearly 320% for those using less than 30 kWh per month,¶ whereas those consuming more than 1 100 kWh per month experienced¶ a 16% decrease in prices.¶ In a similar context, Guy et al (1997) discuss the practices of¶ ‘cherry-picking’ and ‘social dumping,’ witnessed after liberalisation in¶ the UK. They argue that privatisation and liberalisation reward companies¶ who accurately gauge market potential and profitability, and¶ this has led British companies to carefully target socio-economic¶ groups and locations through various techniques such as geodemographic¶ analysis and consumer-profiling (Guy et al 1997). The¶ consequence of such cherry picking is the dumping of unprofitable¶ consumers (Graham & Marvin 1994). With the gradual removal of¶ cross-subsidies and an erosion of the commitment to universal service,¶ utilities have sought to cut the cost of serving so-called ‘cold¶ spots’ by either ‘levering poor domestic customers off their networks¶ or by installing prepayment cards’ (Guy et al 1997). Since electricity¶ provides an essential service for social and economic development,¶ disconnection of unprofitable communities will eventually divide society¶ into ‘haves,’ ‘have nots,’ and those who ‘have little.’ As information¶ and communication are digitised and transferred by means of¶ electrical networks, the social divisiveness of power liberalisation will¶ ultimately mean not simply an inequality in service, but in the capacity¶ to participate economically and politically. In sum, what may be¶ rationalised on microeconomic grounds of allocative efficiency could¶ undermine justice at the macro- or societal level.¶ 4. Redefining the path for power sector reform¶ Growing trends of economic globalisation and political neo-liberalism¶ have spread ideals of economic and technical efficiency throughout¶ the policy arena, including those addressing energy (Winner 1982).¶ Power liberalisation is a recent reflection of this phenomenon. In¶ many cases, the question before governments has not been ‘whether’¶ but ‘how’ to liberalise the electricity sector. Yet, the contradictions in¶ power liberalisation, at the theoretical level and in empirical experience,¶ warrant a more critical assessment of the reform imperative.¶ While eventual outcomes of power liberalisation depend upon the¶ type of social regulation that guides a particular reform process, it¶ seems clear that as long as policymakers adhere to the belief that the¶ market will deliver the optimal outcome for sustainability and democracy,¶ policies that could explicitly seek to ensure those goals are¶ unlikely to be developed or implemented.¶ Although private initiatives and competitive pressures may have a¶ role in addressing fundamental problems of the current electricity¶ industry, **delinking reform efforts from the neo-liberal belief** in market¶ optimality is needed if alternatives are to be constructively discussed.¶ Markets can serve societal interests only when clear public¶ preferences are reflected in their operating structures (see Reddy,¶ forthcoming, for a discussion of this issue). In this respect, the proper¶ relationship between markets and society is one in which the former¶ is informed by the needs and aims of the latter, not the reverse (as¶ neo-liberalism and globalisation advocate).

#### Solar power is a Trojan horse for corporatization of tech—they can’t control the consumerist deployment toward unsustainable ends

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The Sustainable Energy Quest¶ The problems of the conventional energy order have led some to regard¶ reinforcement of the status quo as folly and to instead champion sustainable¶ energy strategies based upon non-conventional sources and a more intelligent ideology of managed relations between energy, environment, and society consonant with environmental integrity. This regime challenger seeks to¶ evolve in the social context that produced the conventional energy regime,¶ yet proposes to fundamentally change its relationship to the environment (at¶ least, this is the hope). Technologies such as wind and photovoltaic electricity are purported to offer building blocks for a transition to a future in which¶ ills plaguing modernity and unsolved by the conventional energy regime¶ can be overcome (Lovins, 1979; Hawken et al., 2000; Scheer, 2002; Rifkin,¶ 2003; World Bank, 2004b).¶ While technical developments always include social, material, ecological, intellectual, and moral infrastructures (Winner, 1977: 54 - 58; Toly, 2005),¶ and may, therefore, be key to promoting fundamentally different development pathways, it is also possible that **technologies, even environmentally**¶ **benign ones, will be appropriated by social forces that predate them and**,¶ **thereby, can be thwarted in the fulfillment of social promises attached to the**¶ **strategy**. Indeed, if unaccompanied by reflection upon the social conditions¶ in which the current energy regime thrives, the transition to a renewable¶ energy regime may usher in very few social benefits and little, if any, political¶ and economic transformation. This is the concern that guides our analysis¶ (below) of the sustainable energy movement.¶ At least since the 1970s when Amory Lovins (1979) famously posed the¶ choice between “hard” and “soft” energy paths, sustainable energy strategies¶ have been offered to challenge the prevailing regime. Sometimes the promise¶ was of no more than “alternative” and “least cost” energy (Energy Policy¶ Project of the Ford Foundation, 1974a, 1974b; O’Toole, 1978; Sant, 1979),¶ but adjectives such as “appropriate,” “natural,” “renewable,” “equitable,”¶ and even “democratic” have also been envisioned (Institute for Local SelfReliance, 2005; Scheer, 2002: 34).¶ 16¶ The need to depart from the past, especially in light of the oil crises of the 1970s and the energy-rooted threat of¶ climate change that has beset policy debate since the late 1980s, united¶ disparate efforts to recast and reconceive our energy future.¶ Partly, early criticisms of the mainstream were reflective of a broader social¶ agenda that drew upon, among other things, the anti-war and anti-corporate¶ politics of the 1960s. It was easy, for example, to connect the modern energy¶ regime to military conflicts of the period and to superpower politics; and it¶ was even easier to ally the mainstream’s promotion of nuclear power to the¶ objectives of the Nuclear Club. With evidence of profiteering by the oil¶ majors in the wake of the 1973-1974 OPEC embargo, connecting the energy¶ regime with the expanding power of multinational capital was, likewise, not¶ difficult. Early sustainable energy strategies opposed these alliances, offering promises of significant political, as well as technological, change.¶ However, in the thirty years that the sustainable energy movement has¶ aspired to change the conventional regime, its social commitments and politics have become muddled. A telling sign of this circumstance is the shifted¶ focus from energy politics to economics. To illustrate, in the celebrated work¶ of one of the movement’s early architects, subtitles to volumes included¶ “breaking the nuclear link” (Amory Lovins’ Energy/War, 1981) and “toward¶ a durable peace” (Lovins’ Soft Energy Paths, 1979). These publications offered poignant challenges to the modern order and energy’s role in maintaining that order.¶ Today, however, the bestsellers of the movement chart a course toward¶ “natural capitalism” (Hawken et al., 2000), a strategy that anticipates synergies between soft path technologies and market governance of energy-environment-society relations. Indeed, a major sustainable energy think tank has¶ reached the conclusion that “small is profitable” (Lovins et al., 2002) in¶ energy matters and argues that the soft path is consistent with “economic¶ rationalism.” Understandably, a movement that sought basic change for a¶ third of a century has found the need to adapt its arguments and strategies to¶ the realities of political and economic power. Without adaptation, the conventional energy regime could have ignored soft path policy interventions¶ like demand-side management, integrated resource planning, public benefits¶ charges, and renewable energy portfolio standards (see Lovins and Gadgil,¶ 1991; Sawin, 2004), all of which have caused an undeniable degree of decentralization in energy-society relations. In this vein, it is clear that sustainability¶ proponents must find ways to speak the language and communicate in the¶ logic of economic rationalism if they are to avoid being dismissed. We do not¶ fault the sustainable energy camp for being strategic. Rather, the concern is¶ whether victories in the everyday of incremental politics have been balanced¶ by attention to the broader agenda of systemic change and the ideas needed¶ to define new directions.¶ A measure of the sustainable energy initiative’s strategic success is the¶ growing acceptance of its vision by past adversaries. Thus, Small is Profitable was named ‘Book of the Year’ in 2002 by The Economist, an award¶ unlikely to have been bestowed upon any of Lovins’ earlier works. As acceptance has been won, it is clear that sustainable energy advocates remain¶ suspicious of the oil majors, coal interests, and the Nuclear Club. But an¶ earlier grounding of these suspicions in anti-war and anti-corporate politics¶ appears to have been superseded by one that believes the global economy¶ can serve a sustainability interest if the ‘raison de market’ wins the energy¶ policy debate. Thus, it has been suggested that society can turn “more profit¶ with less carbon,” by “harnessing corporate power to heal the planet” (Lovins,¶ 2005; L. H. Lovins and A. B. Lovins, 2000). Similarly, Hermann Scheer (2002:¶ 323) avers: “The fundamental problem with today’s global economy is not¶ globalization per se, but that this globalization is not based on the sun—the¶ only global force that is equally available to all and whose bounty is so great¶ that it need never be fully tapped.” However, it is not obvious that market¶ economics and globalization can be counted upon to deliver the soft path¶ (see e.g. Nakajima and Vandenberg, 2005). More problematic, as discussed¶ below, the emerging soft path may fall well short of a socially or ecologically¶ transforming event if strategic victories and rhetorics that celebrate them¶ **overshadow systemic critiques** of energy-society relations and the corresponding need to align the sustainable energy initiative with social movements to¶ address a comprehensive agenda of change.¶ Catching the Wind¶ To date, the greatest success in ‘real’ green energy development is the¶ spread of wind power. From a miniscule 1,930 MW in 1990 to more than¶ 47,317 MW in 2005, wind power has come of age. Especially noteworthy is¶ the rapid growth of wind power in Denmark (35 percent per year since 1997),¶ Spain (30 percent per year since 1997), and Germany (an astonishing 68¶ percent per year since 2000), where policies have caused this source to threaten¶ the hegemony of fossil fuels and nuclear energy. Wind now generates more¶ than 20 percent of Denmark’s electricity and the country is the world leader in¶ turbine manufacture. And as the Danes have demonstrated, offshore wind has¶ the potential to skirt some of the land-use conflicts that have sometimes beset¶ renewable energy alternatives. Indeed, some claim that offshore wind alone¶ might produce all of Europe’s residential electricity (Brown, 2004). National¶ energy strategists and environmental movements in and beyond Europe have¶ recognized the achievements of the Danes, Spaniards, and Germans with initiatives designed to imitate their success.¶ What are the characteristics of this success? One envied feature is the¶ remarkable decline in the price of wind-generated electricity, from $0.46 per¶ kWh in 1980 to $0.03 to $0.07 per kWh today (Sawin, 2004), very close to¶ conventionally-fueled utility generating costs in many countries, even before environmental impacts are included. Jubilant over wind’s winning market performance, advocates of sustainable energy foresee a new era that is¶ ecologically much greener and, yet, in which electricity remains (comparatively) cheap. Lester Brown (2003: 159) notes that wind satisfies seemingly¶ equally weighted criteria of environmental benefit, social gain, and economic efficiency:¶ Wind is...clean. Wind energy does not produce sulfur dioxide emissions or nitrous¶ oxides to cause acid rain. Nor are there any emissions of health-threatening mercury¶ that come from coal-fired power plants. No mountains are leveled, no streams are¶ polluted, and there are no deaths from black lung disease. Wind does not disrupt the¶ earth’s climate...[I]t is inexhaustible...[and] cheap.¶ This would certainly satisfy the canon of economic rationalism.¶ It is also consistent with the ideology of modern consumerism. Its politics¶ bestow sovereignty on consumers not unlike the formula of Pareto optimality,¶ a situation in which additional consumption of a good or service is warranted¶ until it cannot improve the circumstance of one person (or group) without¶ decreasing the welfare of another person (or group).¶ 17¶ How would one know¶ “better off” from “worse off” in the wind-rich sustainable energy era? Interestingly, proponents seem to apply a logic that leaves valuation of “better” and¶ “worse” devoid of explicit content. In a manner reminiscent of modern economic thinking, cheap-and-green enthusiasts appear willing to set wind to¶ the task of making “whatever”—whether that is the manufacture of low-cost¶ teeth whitening toothpaste or lower cost SUVs. In economic accounting, all¶ of these applications potentially make some in society “better off” (if one¶ accepts that economic growth and higher incomes are signs of improvement).¶ Possible detrimental side effects or externalities (an economic term for potential harm) could be rehabilitated by the possession of more purchasing power,¶ which could enable society to invent environmentally friendly toothpaste¶ and make affordable, energy-efficient SUVs. Sustainable energy in this construct cooperates in the abstraction of consumption and production. Consumption-of-what, -by-whom, and -for-what-purpose, and, relatedly,¶ production-of-what, -by-whom, and -for-what-purpose are not issues. The¶ construct altogether ignores the possibility that “more-is-better” consumption-production relations may actually reinforce middle class ideology and¶ capitalist political economy, as well as contribute to environmental crises¶ such as climate change. In the celebration of its coming market victory, the¶ cheap-and-green wind version of sustainable energy development may not¶ readily distinguish the economic/class underpinnings of its victory from those¶ of the conventional energy regime.¶ Wind enthusiasts also appear to be largely untroubled by trends toward¶ larger and larger turbines and farms, the necessity of more exotic materials to¶ achieve results, and the advancing complications of catching the wind. There¶ is nothing new about these sorts of trends in the modern period. The trajectory of change in a myriad of human activities follows this pattern. Nor is a¶ critique per se intended in an observation of this trend. Rather, the question¶ we wish to raise is whether another feature in this pattern will likewise be¶ replicated—namely, a “technological mystique” (Bazin, 1986) in which social life finds its inspiration and hope in technical acumen and searches for¶ fulfillment in the ideals of technique (Mumford, 1934; Ellul, 1964; Marcuse,¶ 1964; Winner, 1977, 1986; Vanderburg, 2005).¶ This prospect is not a distant one, as a popular magazine recently illustrated. In a special section devoted to thinking “After Oil,” National Geographic approvingly compared the latest wind technology to a well-known¶ monument, the Statue of Liberty, and noted that the new machines tower¶ more than 400 feet above this symbol (Parfit, 2005: 15 - 16). It was not hard to¶ extrapolate from the story the message of Big Wind’s liberatory potential.¶ Popular Science also commended new wind systems as technological marvels, repeating the theme that, with its elevation in height and complexity¶ lending the technology greater status, wind can now be taken seriously by¶ scientists and engineers (Tompkins, 2005). A recent issue of The Economist¶ (2005) included an article on the wonder of electricity generated by an artificial tornado in which wind is technologically spun to high velocities in a¶ building equipped with a giant turbine to convert the energy into electricity.¶ Indeed, wind is being contemplated as a rival able to serve society by the¶ sheer technical prowess that has often been a defining characteristic of modern energy systems.¶ Obviously, wind energy has a long way to go before it can claim to have¶ dethroned conventional energy’s “technological cathedrals” (Weinberg,¶ 1985). But its mission seems largely to supplant other spectacular methods of¶ generating electricity with its own. The politics supporting its rapid rise¶ express no qualms about endorsing the inevitability of its victories on tech-¶ nical grounds. In fact, Big Wind appears to seek monumental status in the¶ psyche of ecologically modern society. A recent alliance of the American¶ Wind Energy Association and the U.S. electric utility industry to champion¶ national (subsidized) investment in higher voltage transmission lines (to¶ deliver green-and-cheap electricity), illustrates the desire of Big Wind to¶ plug into Giant Power’s hardware and, correspondingly, its ideology (see¶ American Wind Energy Association, 2005, supporting “Transmission Infrastructure Modernization”). The transformative features of such a politics are¶ unclear. Indeed, wind power—if it can continue to be harvested by everlarger machines—may penetrate the conventional energy order so successfully that it will diffuse, without perceptible disruption, to the regime. The air¶ will be cleaner but the source of this achievement will be duly noted: science¶ will have triumphed still again in wresting from stingy nature the resources¶ that a wealthy life has grown to expect. Social transformation to achieve¶ sustainability may actually be unnecessary by this political view of things, as¶ middle-class existence is assured via clean, low-cost and easy-to-plug-in wind¶ power.¶ **Small-is-Beautiful Solar18**¶The second fastest growing renewable energy option—solar electric¶ power—is proving more difficult to plug in. Despite steady declines in the¶ cost per kWh of energy generated by photovoltaic (PV) cells, this alternative¶ remains a pricey solution by conventional standards. Moreover, the technology does not appear to have significant scale economies, partly because the¶ efficiency of PV cannot be improved by increasing the size of the device or its¶ application. That is, unit energy costs of large installations of many PV arrays¶ do not deviate appreciably from those for small installations comprised of¶ fewer arrays. Instead, the technology seems to follow a modular economic¶ logic in which unit costs neither grow nor decline with scale. Some have¶ praised this attribute, suggesting that PV’s modularity means there are no¶ technical or economic reasons for scaling its application to iconic levels that¶ conventional power plants now represent, potentiating a more robust system¶ of distributed generation and delivering clean energy to previously¶ marginalized populations (Martinot and Reiche, 2000; Martinot et al., 2002).¶ Small-Is-Beautiful Solar is attributed with social empowerment potential¶ by Vaitheeswaran (2003: 314) who notes that PV (and other small scale electricity generation technologies) can overcome social barriers through a “collision of clean energy, microfinance, and community empowerment,” three¶ properties that may lift the burden of poverty and promote democratic social¶ relations. “Micropower,” he argues (2003: 314), “is beginning to join forces¶ with village power.” Thus, it would seem that a Solar Society might depend¶ upon a different politics than Big Wind in displacing a fossil and nuclear¶ energy driven world economy.¶ Perhaps because PV has, so far, found wider social usage in rural contexts¶ where poverty (as modernly conceived) persists, discussions, in fact, crop up¶ about solar’s social project. For example, arguments have formed around the¶ gender interests of PV, at least as it has been diffused in rural life to date (see,¶ for example, Allerdice and Rogers, 2000). And criticism has surfaced about¶ PV’s ‘capture’ by the state as a tool to quiet, if not mollify, the rural poor¶ (Okubo, 2005: 49 - 58). There has even been a charge that PV and other¶ renewables are being used by multilateral organizations such as the World¶ Bank to stall Southern development. By imposing a fragmented patchwork¶ of tiny, expensive solar generators on, for example, the African rural landscape, instead of accumulating capital in an industrial energy infrastructure,¶ the World Bank and other actors are accused of being unresponsive to the¶ rapid growth needs of the South (Davidson and Sokona, 2002; Karekezi and¶ Kithyoma, 2002). A related challenge of PV’s class interests has raised questions about the technology’s multinational corporate owners and offered¶ doubts about successful indigenization of solar cell manufacturing (AbleThomas, 1995; Guru, 2002: 27; Bio-Energy Association of Sri Lanka, 2004:¶ 20). Regardless of one’s position on these debates, it is refreshing to at least¶ see solar energy’s possible political and economic interests considered.¶ But PV’s advocates have not embraced the opportunities created by its¶ rural examiners to seriously investigate the political economy of solar energy. The bulk of solar research addresses engineering problems, with a modest social inquiry focused on issues of technological transition in which solar¶ electricity applications are to find their way into use with as little social¶ resistance or challenge as possible. A green politics that is largely unscarred¶ by conflict is, and for a long time has been, anticipated to characterize an¶ emergent Solar Society (Henderson, 1988; Ikeda and Henderson, 2004). Likewise, **solar economics is thought to be consensual** as non-renewable options¶ become too expensive and PV cells, by comparison, too cheap to be refused¶ their logical role (see, for example, Henderson, 1995, 1996; Rifkin, 2003). It¶ seems that a solarized social order is inevitable for its proponents, with technological breakthrough and economic cost the principal determinants of when¶ it will arrive.¶ In this regard, ironically, Small-is-Beautiful Solar shares with Big Wind ¶ the aspiration to re-order the energy regime without changing society. Despite modern society’s technological, economic, and political addiction to¶ large-scale, cheap energy systems that solar energy cannot mimic, most PV¶ proponents hope to revolutionize the technological foundation of modernity, without disturbing its social base. A new professional cadre of solar¶ architects and engineers are exhorted to find innovative ways of embedding¶ PV technology in the skin of buildings (Strong, 1999; Benemann, Chehab,¶ and Schaar-Gabriel, 2001), while transportation engineers and urban planners are to coordinate in launching “smart growth” communities where vehicles are powered by hydrogen derived from PV-powered electrolysis to¶ move about in communities optimized for “location efficiency” (Ogden, 1999;¶ Holtzclaw et al., 2002). The wildly oversized ecological footprint of urban¶ societies (Rees and Wackernagel, 1996) is unquestioned as PV **decorates its**¶ **structure**.¶ These tools for erecting a Solar Society intend to halt anthropogenic¶ changes to the chemistry of the atmosphere, rain, and soil mantle while enabling unlimited economic growth. In the Solar Society of tomorrow, we will¶ make what we want, in the amounts we desire, without worry, because all of its¶ energy is derived from the benign, renewable radiation supplied by our galaxy’s¶ sun. Compared to Big Wind, PV may cost more but it promises to deliver an¶ equivalent social result (minus the avian and landscape threats of the former)¶ and, just possibly, with a technical elegance that surpasses the clunky¶ mechanicalness of turbines propelled by wind. In this respect, Solar Society¶ makes its peace with modernity by leaving undisturbed the latter’s cornucopian¶ dreams¶ 19¶ and, likewise, **poses no serious challenge** to the social and political¶ structures of the modern era.¶ At this precise point, inequality and conflict can only be conceived in¶ Solar Society as the results of willful meanness and greed. While the solar¶ variety of technological politics guiding society may be relatively¶ minimalist—no towering new monuments or spectacular devices are¶ planned—it would be no less committed to the ideals of technique in shaping¶ social experience and its self-assessment. Similarly, its economics would¶ warmly embrace a form of consumptive capitalism, although with cleaner¶ inputs (and possibly throughputs) than before.¶ While the discussion here of sustainable energy advocacy has concentrated on its wind- and solar-animated versions, we believe that strategies¶ anticipating significant roles for geothermal, biomass, micro-hydro, and hydrogen harvested from factories fueled by renewables anticipate variants of¶ the social narratives depicted for the two currently most prominent renewable¶ energy options. The aim of producing more with advancing ecological efficiency in order to consume more with equally advancing consumerist satisfaction underpins the sustainable energy future in a way that would seamlessly¶ tie it to the modernization project.¶ 20

## 1nr

### desal

**Desalination is too costly and politically contentious – conservation’s better**

**Sammon '07**. Richard, senior associate editor with Kiplinger Letter. "Water Scarcity Will Change How We Live and Work" June 27. http://www.ecoearth.info/shared/reader/print.aspx?linkid=78703

Desalination can help, but it has many drawbacks. Florida, Georgia and South Carolina will add more

plants, and San Diego is pinning its water hopes on a large desalination facility. One drawback about

desalination, though, is the expense involved in the process. Conservation is far cheaper, and Congress

will get in the game with several bills pending to provide grants and incentives to communities to adopt

stricter conservation and recycling projects, more so than desalination. Water technology companies

will thrive. Sales of equipment for filtration, ultraviolet oxidation and vapor compression, for instance, will

rise 15% annually for five years and probably beyond, up from about $1.8 billion today. Leading

manufacturers of the equipment, as well as manufacturers of water-efficient appliances, include CH2M Hill, Separation Dynamics, Siemens, EZ Environmental Solutions and SETS Systems.

### DeDev

#### No chance that tech solves warming

**Martenson, PhD Economist, 9** [Dr. Chris Martenson is an independent economist and author of a popular website, ChrisMartenson.com. Chris earned a PhD in neurotoxicology from Duke University, and an MBA from Cornell University. A fellow of the Post Carbon Institute, Chris's work has appeared on PBS and been cited by the Washington Post. He is a contributor to SeekingAlpha.com and FinancialSense.com, and former VP of Pfizer and SAIC “Copenhagen & Economic Growth - You Can't Have Both,” Dec 24 http://www.energybulletin.net/node/51229]

I want to point out that a massive discrepancy exists between the official pronouncements emerging from Copenhagen on carbon emissions and recent government actions to spur economic growth. Before and during Copenhagen (and after, too, we can be sure), politicians and central bankers across the globe have worked tirelessly to return the global economy to a path of growth. We need more jobs, we are told; we need economic growth, we need more people consuming more things. Growth is the ever-constant word on politicians' lips. Official actions amounting to tens of trillions of dollars speak to the fact that this is, in fact, our number-one global priority. But the consensus coming out of Copenhagen is that carbon emissions have to be reduced by a vast amount over the next few decades. These two ideas are mutually exclusive. You can't have both. Economic growth requires energy, and most of our energy comes from hydrocarbons - coal, oil, and natural gas. Burning those fuel sources releases carbon. Therefore, increasing economic activity will release more carbon. It is a very simple concept. Nobody has yet articulated how it is that we will reconcile both economic growth and reduced use of hydrocarbon energy. And so the proposed actions coming out of Copenhagen are not grounded in reality, and they are set dead against trillions of dollars of spending. There is only one thing that we know about which has curbed, and even reversed, the flow of carbon into the atmosphere, and that is the recent economic contraction. This is hard proof of the connection between the economy and energy. It should serve as proof that any desire to grow the economy is also an explicit call to increase the amount of carbon being expelled into the atmosphere. The idea of salvation via the electric plug-in car or other renewable energy is a fantasy. The reality is that any new technology takes decades to reach full market penetration, and we haven't even really begun to introduce any yet. Time, scale, and cost must be weighed when considering any new technology's potential to have a significant impact on our energy-use patterns. For example, a recent study concluded that another 20 years would be required for electric vehicles to have a significant impact on US gasoline consumption. Meaningful Numbers of Plug-In Hybrids Are Decades Away The mass-introduction of the plug-in hybrid electric car is still a few decades away, according to new analysis by the National Research Council. The study, released on Monday, also found that the next generation of plug-in hybrids could require hundreds of billions of dollars in government subsidies to take off. Even then, plug-in hybrids would not have a significant impact on the nation’s oil consumption or carbon emissions before 2030. Savings in oil imports would also be modest, according to the report, which was financed with the help of the Energy Department. Twenty to thirty years is the normal length of time for any new technology to scale up and fully penetrate a large market. But this study, as good as it was in calculating the time, scale, and cost parameters of technology innovation and penetration, still left out the issue of resource scarcity. Is there enough lithium in the world to build all these cars? Neodymium? This is a fourth issue that deserves careful consideration, given the scale of the overall issue. But even if we did manage to build hundreds of millions of plug-in vehicles, where would the electricity come from? Many people mistakenly think that we are well on our way to substantially providing our electricity needs using renewable sources such as wind and solar. We are not. Renewable timetable is a long shot Al Gore's well-intentioned challenge that we produce "100 percent of our electricity from renewable energy and truly clean carbon-free sources within 10 years" represents a widely held delusion that we can't afford to harbor. The delusion is shared by the Minnesota Legislature, which is requiring the state's largest utility, Xcel Energy, to get at least 24 percent of its energy from wind by 2020. One of the most frequently ignored energy issues is the time required to bring forth a major new fuel to the world's energy supply. Until the mid-19th century, burning wood powered the world. Then coal gradually surpassed wood into the first part of the 20th century. Oil was discovered in the 1860s, but it was a century before it surpassed coal as our largest energy fuel. Trillions of dollars are now invested in the world's infrastructure to mine, process and deliver coal, oil and natural gas. As distinguished professor Vaclav Smil of the University of Manitoba recently put it, "It is delusional to think that the United States can install in a decade wind and solar generating capacity equivalent to that of thermal power plants that took nearly 60 years to construct." Texas has three times the name plate wind capacity of any other state — 8,000-plus megawatts. The Electric Reliability Council of Texas manages the Texas electric grids. ERCOT reports that its unpredictable wind farms actually supply just a little more than 700 MW during summer power demand, and provide just 1 percent of Texas' power needs of about 72,000 MW. ERCOT's 2015 forecast still has wind at just more than 1 percent despite plans for many more turbines. For the United States, the Energy Information Administration is forecasting wind and solar together will supply less than 3 percent of our electric energy in 2020. Again it turns out that supplanting even a fraction of our current electricity production with renewables will also take us decades. And even that presumes that we have a functioning economy in which to mine, construct, transport and erect these fancy new technologies. Time, scale, and cost all factor in as challenges to significant penetration of new energy technologies as well. So where will all the new energy for economic growth come from? The answer, unsurprisingly, is from the already-installed carbon-chomping coal, oil, and natural gas infrastructure. That is the implicit assumption that lies behind the calls for renewed economic growth. It's The Money, Stupid As noted here routinely in my writings and in the Crash Course, we have an exponential monetary system. One mandatory feature of our current exponential monetary system is the need for perpetual growth. Not just any kind of growth; exponential growth. That's the price for paying interest on money loaned into existence. Without that growth, our monetary system shudders to a halt and shifts into reverse, operating especially poorly and threatening to melt down the entire economic edifice. This is so well understood, explicitly or implicitly, throughout all the layers of society and in our various institutions, that you will only ever hear politicians and bankers talking about the "need" for growth. In fact, they are correct; our system does need growth. All debt-based money systems require growth. That is the resulting feature of loaning one's money into existence. That's the long and the short of the entire story. The growth may seem modest, perhaps a few percent per year ('That's all, honest!'), but therein lies the rub. Any continuous percentage growth is still exponential growth. Exponential growth means not just a little bit more each year, but a constantly growing amount each year. It is a story of more. Every year needs slightly more than the prior year - that's the requirement. The Gap Nobody has yet reconciled the vast intellectual and practical gap that exists between our addiction to exponential growth and the carbon reduction rhetoric coming out of Copenhagen. I've yet to see any credible plan that illustrates how we can grow our economy without using more energy. Is it somehow possible to grow an economy without using more energy? Let's explore that concept for a bit. What does it mean to "grow an economy?" Essentially, it means more jobs for more people producing and consuming more things. That's it. An economy, as we measure it, consists of delivering the needs and wants of people in ever-larger quantities. It's those last three words - ever-larger quantities - that defines the whole problem. For example, suppose our economy consisted only of building houses. If the same number of houses were produced each year, we'd say that the economy was not growing. It wouldn't matter whether the number was four hundred thousand or four million; if the same number of new homes were produced each year, year after year, this would be considered a very bad thing, because it would mean our economy was not growing. The same is true for cars, hair brushes, big-screen TVs, grape juice, and everything else you can think of that makes up our current economy. Each year, more needs to be sold than the year before, or the magic economic-stimulus wands will come out to ward off the Evil Spirits of No Growth. If our economy were to grow at the same rate as the population, it would grow by around 1% per year. This is still exponential growth, but it is far short of the 3%-4% that policymakers consider both desirable and necessary. Why the gap? Why do we work so hard to ensure that 1% more people consume 3% more stuff each year? Out of Service It's not that 3% is the right number for the land or the people who live upon it. The target of 3% is driven by our monetary system, which needs a certain rate of exponential growth each year in order to cover the interest expense due each year on the already outstanding loans. The needs of our monetary system are driving our economic decisions, not the needs of the people, let alone the needs of the planet. We are in service to our money system, not the other way around. Today we have a burning need for an economic model that can operate tolerably well without growth. But ours can't, and so we actually find ourselves in the uncomfortable position of pitting human needs against the money system and observing that the money system is winning the battle. The Federal Reserve exists solely to assure that the monetary system has what it needs to function. That is their focus, their role, and their primary concern. I assume that they assume that by taking care of the monetary system, everything else will take care of itself. I think their assumption is archaic and wrong. Regardless, our primary institutions and governing systems are in service to a monetary system that is dysfunctional. It was my having this outlook, this lens, more than any other, that allowed me to foresee what so many economists missed. Only by examining the system from a new, and very wide, angle can the enormous flaws in the system be seen. Economy & Energy Now let's get back to our main problem of economic growth and energy use (a.k.a. carbon production). There is simply no way to build houses, produce televisions, grow and transport grape juice, and market hair brushes without consuming energy in the process. That's just a cold, hard reality. We need liquid fuel to extract, transform, and transport products to market. More people living in more houses means we need more electricity. Sure, we can be more efficient in our use of energy, but unless our efficiency gains are exceeding the rate of economic growth, more energy will be used, not less. In the long run, if we were being 3% more efficient in our use of fuel and growing our economy at 3%, this would mean burning the same amount of fuel each year. Unfortunately, fuel-efficiency gains are well known to run slower than economic growth. For example, the average fuel efficiency of the US car fleet (as measured by the CAFE standards) has increased by 18% over the past 25 years, while the economy has grown by 331%. Naturally, our fuel consumption has grown, not fallen, over that time, despite the efficiency gains. So the bottom line is this: There is no possible way to both have economic growth (as we've known it in the past) and cut carbon emissions. At least not without doing things very differently.

### Inevitable

#### CO2 increases are inevitable because of human exhalations

Lovelock ‘9, Consultant of NASA, former president of the Marine Biological Association, and Honorary Visiting Fellow of Green Templeton College, Oxford (James, The Vanishing Face of Gaia: A Final Warning: Enjoy it While You Can, 74-75)

It is surprising that politicians could have been so unwise as to agree on policies many decades ahead. Perhaps there were voics from scientists who warned of the absurdity of such planning, but if so they do not seem to have head. Even if we cut emissions by 60 percent to 12 gigatons a year, it wouldn't be enough. I have mentioned several times before that breathing is a potent source of carbon dioxide, but did you know that the exhalations of breath and other gaseous emissions by the nearly 7 billion people on Earth, their pets, and their livestock are responsible for 23 percent of all greenhouse gas emissions? If you add on the fossil fuel burnt in total activity of growing, gathering, selling, and serving food, all of this adds up to about half of all carbon dioxide emissions. Think of farm machinery, the transport of food from the farms, and the transport of fertilizer, pesticides, and the fuel used in their manufacture; the road building and maintenance; super-market operation and the packaging industry; to say nothing of the energy used in cooking, refrigerating, and serving food. As if this were not enough, think of how farmland fails to serve Gaia as the forests it replaced did. If, just by living with our pets and livestock, we are responsible for nearly half the emissions of carbon dioxide, I do not see how the 60 percent reduction can be achieved without a great loss of life. Like it or not, we are the problem--and as a part of the Earth system, not as something separate from and above it. When world leaders ask us to follow them to the inviting green pastures ahead, they should first check that it really is grass on solid ground and not moss covering a quagmire. The only near certain conclusion we can draw from the changing climate and people's response to it is that there is little time left in which to act. Therefore my plea is that adaptation is made at least equal in importance to policy-driven attempts to reduce emissions. We cannot continue to assume that because there is no way gently to reduce our numbers it is sufficient merely to improve our carbon footprints. Too many also think only of the profit to be made from carbon trading. it is not the carbon footprint alone that harms the Earth; the people's footprint is larger and more deadly.

#### It’s too late—deal with it

**Dickinson 9** (Pete, Global warming: Is it too late?, 26 August 2009, http://www.socialistalternative.org/news/article19.php?id=1142, AMiles) Note – paper cited is by Susan Solomon - atmospheric chemist working for the National Oceanic and Atmospheric Administration – Gian-Kasper Plattnerb- Group, Institute of Geophysics and Planetary Physics, UCLA - Reto Knuttic - Institute for Atmopsheric and Climate Science, PhD

New research is claiming that concentrations of carbon dioxide (the main greenhouse gas, CO2) will remain high for at least 1,000 years, even if greenhouse gases are eliminated in the ne xt few decades. The climate scientists who produced this work assert that the effects of global warming, such as high sea levels and reduced rainfall in certain areas, will also persist over this time scale. (The findings are in a paper published in February in the Proceedings of the National Academy of Sciences by researchers from the USA, Switzerland and France, www.pnas.org/cgi/doi/10.1073/pnas.0812721106 ) Most previous estimates of the longevity of global warming effects, after greenhouse gases were removed, have ranged from a few decades to a century, so this new analysis could represent a development with very serious implications, including political ones. For example, those campaigning for action on climate change could be disheartened and climate sceptics could opportunistically say that nothing should be done **because it is now too late.** The authors of the paper make various estimates of CO2 concentrations based on the year emissions are cut, assumed to be from 2015 to 2050. They make optimistic assumptions, for instance, that emissions are cut at a stroke rather than gradually, and that their annual rate of growth before cut-off is 2%, not the 3% plus witnessed from 2000-05. They then estimate what the effects would be on surface warming, sea level rise and rainfall over a 1,000-year period using the latest climate models. The results of the melting of the polar ice caps are not included in the calculations of sea levels, only the expansion of the water in the oceans caused by the surface temperature increase so, as the authors point out, the actual new sea level will be much higher. The best-case results for surface warming, where action is taken in 2015 to eliminate emissions, show that over 1,000 years the temperature rises from 1.3 to 1.0 degree centigrade above pre-industrial levels. The worst case, where action is delayed to 2050, predicts surface temperatures will increase from just under to just over four degrees by 2320 and then remain approximately constant for the rest of the millennium. High levels of CO2 persist in the atmosphere because, over long timescales, reduction of the gas is dependent on the ability of the oceans to absorb it, but there are limits to this due to the physics and chemistry of deep-ocean mixing. On the other hand, the amount of heat in the atmosphere that can be absorbed by the sea, the key way surface temperatures are decreased, is limited by the same scientific laws. As a result, carbon concentrations cannot fall enough to force temperatures down while there is simultaneously reduced cooling due to limited heat loss to the oceans.

#### Triggers their impacts

**ANI 10** 3-2010, citing Charles H. Greene, Cornell professor of Earth and atmospheric science <http://news.oneindia.in/2010/03/20/ipcchas-underestimated-climate-change-impacts-sayscientis.html>

According to Charles H. Greene, Cornell professor of Earth and atmospheric science, "Even if all man-made greenhouse gas emissions were stopped tomorrow and carbon-dioxide levels stabilized at today's concentration, by the end of this century, the global average temperature would increase by about 4.3 degrees Fahrenheit, or about 2.4 degrees centigrade above pre-industrial levels, which is significantly **above** the level which scientists and policy makers agree is a threshold for dangerous climate change." "Of course, greenhouse gas emissions will not stop tomorrow, so the actual temperature increase will likely be significantly larger, resulting in potentially catastrophic impacts to society unless other steps are taken to reduce the Earth's temperature," he added. "Furthermore, while the oceans have slowed the amount of warming we would otherwise have seen for the level of greenhouse gases in the atmosphere, the ocean's thermal inertia will also slow the cooling we experience once we finally reduce our greenhouse gas emissions," he said. This means that the temperature rise we see this century will be largely irreversible for the next thousand years. "Reducing greenhouse gas emissions alone is unlikely to mitigate the risks of dangerous climate change," said Green.

### No Impact

#### Adaptation Solves oceans

**Carter 11**, Robert, PhD, Adjuct Research Fellow, James Cook University, Craig Idso, PhD, Chairman at the Center for the Study of Carbon Dioxide and Global Change, Fred Singer, PhD, President of the Science and Environmental Policy Project, Susan Crockford, evolutionary biologist with a specialty in skeletal taxonomy , paleozoology and vertebrate evolution, Joseph D’Aleo, 30 years of experience in professional meteorology, former college professor of Meteorology at Lyndon State College, Indur Goklany, independent scholar, author, and co-editor of the Electronic Journal of Sustainable Development, Sherwood Idso, President of the Center for the Study of Carbon Dioxide and Global Change, Research Physicist with the US Department of Agriculture, Adjunct Professor in the Departments of Geology, Botany, and Microbiology at Arizona State University, Bachelor of Physics, Master of Science, and Doctor of Philosophy, all from the University of Minnesota, Madhav Khandekar, former research scientist from Environment Canada and is an expert reviewer for the IPCC 2007 Climate Change Panel, Anthony Lupo, Department Chair and Professor of Atmospheric Science at the University of Missouri, Willie Soon, astrophysicist at the Solar and Stellar Physics Division of the Harvard-Smithsonian Center for Astrophysics, Mitch Taylor (Canada) [“Climate Change Reconsidered 2011 Interim Report,” September, Science and Environmental Policy Project, Center for the Study of Carbon Dioxide and Global Change, Published by The Heartland Institute]

In further discussing the subject, Langer et al. (2009) write, ―shifts in dominance between species and/or between clones within a species might therefore be expected,‖ as the air‘s CO2 content continues to rise; but they state that too often ―the possibility of adaptation is not taken into account.‖ This should not be assumed away, for the great genetic diversity that exists both among and within species, in the words of Stoll, ―is good insurance in a changing ocean.‖ Indeed, this could be interpreted as evidence that Earth‘s coccolithophorids are well prepared for whatever the future may thrust at them in this regard, for as Langer et al. (2006) have more boldly and explicitly stated, ―genetic diversity, both between and within species, may allow calcifying organisms to prevail in a high CO2 ocean.‖

### Don’t Solve

#### Solar’s too expensive even if we give away the panels

Zehner 12

Green illusions,

Ozzie Zehner is the author of Green Illusions and a visiting scholar at the University of California, Berkeley. His recent publications include public science pieces in Christian Science Monitor, The American Scholar, Bulletin of the Atomic Scientists, The Humanist, The Futurist, and Women’s Studies Quarterly. He has appeared on PBS, BBC, CNN, MSNBC, and regularly guest lectures at universities. Zehner’s research and projects have been covered by The Sunday Times, USA Today, WIRED, The Washington Post, Business Week and numerous other media outlets. He also serves on the editorial board of Critical Environmentalism.

Zehner primarily researches the social, political and economic conditions influencing energy policy priorities and project outcomes. His work also incorporates symbolic roles that energy technologies play within political and environmental movements. His other research interests include consumerism, urban policy, environmental governance, international human rights, and forgeries.

Zehner attended Kettering University (BS -Engineering) and The University of Amsterdam (MS/Drs – Science and Technology Studies). His research was awarded with honors at both institutions. He lives in San Francisco.

Free Panels, Anyone? Among the ceos and chief scientists in the solar industry, there is surprisingly little argument that solar systems are expensive.46 Even an extreme drop in the price of polysilicon, the most expensive technical component, would do little to make solar cells more competitive. Peter Nieh, managing director of Lightspeed Venture Partners, a multibillion-dollar venture capital firm in Silicon Valley, contends that cheaper polysilicon won't reduce the overall cost of solar arrays much, even if the price of the expensive material dropped to zero.47 Why? Because the cost of other materials such as copper, glass, plastics, and aluminum, as well as the costs for fabrication and installation, represent the bulk of a solar system's overall price tag. The technical polysilicon represents only about a fifth of the total. Furthermore, Keith Barnham, an avid solar proponent and senior researcher at Imperial College London, admits that unless efficiency levels are high, "even a zero cell cost is not competitive."48 In other words, even if someone were to offer you solar cells for free, you might be better off turning the offer down than paying to install, connect, clean, insure, maintain, and eventually dispose of the modules—especially if you live outside the remote, dry, sunny patches of the planet such as the desert extending from southeast California to western Arizona. In fact, the unanticipated costs, performance variables, and maintenance obligations for photovoltaics, too often ignored by giddy proponents of the technology, can swell to unsustainable magnitudes. Occasionally buyers decommission their arrays within the first decade, leaving behind graveyards of toxic panels teetering above their roofs as epitaphs to a fallen dream. Premature decommissioning may help explain why American photovoltaic electrical generation dropped during the last economic crisis even as purported solar capacity expanded.49 Curiously, while numerous journalists reported on solar infrastructure expansion during this period, I was unable to locate a single article covering the contemporaneous drop in the nation's solar electrical output, which the Department of Energy quietly slid into its annual statistics without a peep.

### A2 Royal

#### And, diversionary war theory is false

**Boehmer 2007** – political science professor at the University of Texas (Charles, Politics & Policy, 35:4, “The Effects of Economic Crisis, Domestic Discord, and State Efficacy on the Decision to Initiate Interstate Conflict”, WEA)

This article examines the contemporaneous effect of low economic growth and domestic instability on the threat of regime change and/ or involvement in external militarized conflicts. Many studies of diversionary conflict argue that lower rates of economic growth should heighten the risk of international conflict. Yet we know that militarized interstate conflicts, and especially wars, are generally rare events whereas lower rates of growth are not. Additionally, a growing body of literature shows that regime changes are also associated with lower rates of economic growth. The question then becomes which event, militarized interstate conflict or regime change, is the most likely to occur with domestic discord and lower rates of economic growth? Diversionary theory claims that leaders seek to divert attention away from domestic problems such as a bad economy or political scandals, or to garner increased support prior to elections. Leaders then supposedly externalize discontented domestic sentiments onto other nations, sometimes as scapegoats based on the similar in-group/out-group dynamic found in the research of Coser (1956) and Simmel (1955), where foreign countries are blamed for domestic problems. This process is said to involve a “rally-round-the-flag” effect, where a leader can expect a short-term boost in popularity with the threat or use of force (Blechman, Kaplan, and Hall 1978; Mueller 1973). Scholarship on diversionary conflict has focused most often on the American case1 but recent studies have sought to identify this possible behavior in other countries.2 The Falklands War is often a popular example of diversionary conflict (Levy and Vakili 1992). Argentina was reeling from hyperinflation and rampant unemployment associated with the Latin American debt crisis. It is plausible that a success in the Falklands War may have helped to rally support for the governing Galtieri regime, although Argentina lost the war and the ruling regime lost power. How many other attempts to use diversionary tactics, if they indeed occur, can be seen to generate a similar outcome? The goal of this article is to provide an assessment of the extent to which diversionary strategy is a threat to peace. Is this a colorful theory kept alive by academics that has little bearing upon real events, or is this a real problem that policy makers should be concerned with? If it is a strategy readily available to leaders, then it is important to know what domestic factors trigger this gambit. Moreover, to know that requires an understanding of the context in external conflict, which occurs relative to regime changes. Theories of diversionary conflict usually emphasize the potential benefits of diversionary tactics, although few pay equal attention to the prospective costs associated with such behavior. It is not contentious to claim that leaders typically seek to remain in office. However, whether they can successfully manipulate public opinion regularly during periods of domestic unpopularity through their states’ participation in foreign militarized conflicts—especially outside of the American case—is a question open for debate. Furthermore, there appears to be a logical disconnect between diversionary theories and extant studies of domestic conflict and regime change. Lower rates of economic growth are purported to increase the risk of both militarized interstate conflicts (and internal conflicts) as well as regime changes (Bloomberg and Hess 2002). This implies that if leaders do, in fact, undertake diversionary conflicts, many may still be thrown from the seat of power—especially if the outcome is defeat to a foreign enemy. Diversionary conflict would thus seem to be a risky gambit (Smith 1996). Scholars such as MacFie (1938) and Blainey (1988) have nevertheless questioned the validity of the diversionary thesis. As noted by Levy (1989), this perspective is rarely formulated as a cohesive and comprehensive theory, and there has been little or no knowledge cumulation. Later analyses do not necessarily build on past studies and the discrepancies between inquiries are often difficult to unravel. “Studies have used a variety of research designs, different dependent variables (uses of force, major uses of force, militarized disputes), different estimation techniques, and different data sets covering different time periods and different states” (Bennett and Nordstrom 2000, 39). To these problems, we should add a lack of theoretical precision and incomplete model specification. By a lack of theoretical precision, I am referring to the linkages between economic conditions and domestic strife that remain unclear in some studies (Miller 1995; Russett 1990). Consequently, extant studies are to a degree incommensurate; they offer a step in the right direction but do not provide robust cross-national explanations and tests of economic growth and interstate conflict. Yet a few studies have attempted to provide deductive explanations about when and how diversionary tactics might be employed. Using a Bayesian updating game, Richards and others (1993) theorize that while the use of force would appear to offer leaders a means to boost their popularity, a poorly performing economy acts as a signal to a leader’s constituents about his or her competence. Hence, attempts to use diversion are likely to fail either because incompetent leaders will likewise fail in foreign policy or people will recognize the gambit for what it is. Instead, these two models conclude that diversion is likely to be undertaken particularly by risk-acceptant leaders. This stress on a heightened risk of removal from office is also apparent in the work of Bueno de Mesquita and others (1999), and Downs and Rocke (1994), where leaders may “gamble for resurrection,” although the diversionary scenario in the former study is only a partial extension of their theory on selectorates, winning coalitions, and leader survival. Again, how often do leaders fail in the process or are removed from positions of power before they can even initiate diversionary tactics? A few studies focusing on leader tenure have examined the removal of leaders following war, although almost no study in the diversionary literature has looked at the effects of domestic problems on the relative risks of regime change, interstate conflict, or both events occurring in the same year.3

### A2 Pazner

#### Trade doesn’t solve war

**Goldstone 2007** (P.R., PhD candidate in the Department of Political Science and a member of the Security Studies Program at the Massachusetts Institute of Technology. He is a non-resident research fellow at the Center for Peace and Security Studies, Georgetown University, AlterNet, September 25, http://www.alternet.org/audits/62848/?page=entire)

Many hope trade will constrain or perhaps pacify a rising China, resurgent Russia, and proliferation-minded Iran, as it well may. Nonetheless, any prudent analysis must incorporate caveats drawn from states' particular political economy of security policy. In non-democratic states, however important global markets may be to the economy in aggregate, elites will be most sensitive to sectoral interests of their specific power base. This mismatch can cause systematic distortions in their ability to interpret other states' strategic signals correctly when genuine conflicts of interest emerge with a nation more domestically constrained. Leadership elites drawn from domestic-oriented, uncompetitive, or non-tradable constituencies will tend to discount deterrent signals sent by trading partners whose own domestic institutions favor those commerce-oriented interests, believing such interests make partners less likely to fulfill their threats. For example, one reason the BJP government of India decided to achieve an open nuclear weapons capability was that its small-business, domestic-oriented heart constituency was both less vulnerable to trade sanctions and less willing to believe that the US would either impose or long sustain such sanctions, given its own increased economic interests in India. Sometimes, deterrent signals may not be sent at all, since one nation's governing coalition may include commerce-dependent groups whose interests prevent state leaders from actually undertaking necessary balancing responses or issuing potent signals of resolve in the first place; the result can be fatally muddled strategy and even war -- as witness the series of weak attempts before the First World War by finance-dominated Britain to deter "Iron and Rye"-dominated Germany. The emergence of truly global markets makes it all the less plausible under most circumstances that a revisionist state will be unable to find some alternative source of resources or outlet for its goods. Ironically, the more the international economy resembles a true global marketplace rather than an oligopolistic economic forum, the less likely it would appear that aggressors must inevitably suffer lasting retaliatory cut-offs in trade. There will always be someone else with the capability to buy and sell.

### real estate link

#### The plan is Reagonomics – the last experiment with REITs created massive overbuilding until the bubble burst – this turns the entire aff

Weber, Urban Planning and Policy, University of Illinois at Chicago, 2002

(Rachel, “Extracting Value from the City: Neoliberalism and Urban Redevelopment,” http://jft-newspaper.aub.edu.lb/reserve/data/soan238-cn-3/week-3\_weber\_extracting\_value.pdf)

Since the 1970s, capital deployment and turnover times have sped up, as have flows of information and signs in general (Lash and Urry 1987; Virillio 1986). On the supply side, in order to attract capital looking for large, liquid trading markets, the commodity of real estate has become progressively dematerialized and deterritorialized. **Real estate has lost its status as a distinct and quirky asset class**, **in the process becoming more detached from place and more subject to the disciplining power and accelerated schedules of global capital markets**.

**The federal government actively accommodated the drive for liquidity in real estate by creating new forms of property and incentives to invest in real estate through tax policies**, such as shelters, deductions, and tax credits. By creating a secondary mortgage market through quasipublic institutions (eg Fannie Mae, formed in 1968), the state has increased the total size of capital flows with **the unattainable aim of reducing cyclical instability of real-estate capital**. These institutions buy mortgages, package them, and guarantee their payments with government backing on mortgage-backed securities held by other insti- tutions, such as pension funds. Securitization connects real-estate credit markets to the nation’s general capital markets and creates more liquidity in the system (Budd 1999). The secondary mortgage market also enables investors in one part of the country to invest in mortgages originated in another region, effectively ending the geographic segmen- tation of credit (Schill 1999). These innovations, mediated by the development of new electronic trading technologies, have increased the pace of financial transactions so that capital does not get grounded for too long.

The federal government also deregulated the thrifts in the 1970s and lifted the ceilings on interest rates. Less regulated institutional investors (eg mutual and pension funds) and insurance companies became engaged in bank-like activity displaced banks from the credit markets they formerly dominated. Enacting a change in tax shelters in 1981, **the Reagan administration effectively bolstered the role of equity** syndicators, such as real-estate investment trusts (REITs), **flooding the markets with capital**. **The resulting overaccumulation resulted in the overbuilding of the 1980s** (Fainstein 1994), particularly in the Sunbelt office sector, **and led the real-estate industry into its worse crisis since the Great Depression**.

Clearly, finance does not just “hang above the rest of the political economy, as it were, as a dominating and abstract force whilst forming part of an order ... of neoliberalism” (Gill 1997:72). New aspects of finance and the money form at the national and global scales are directly relevant to local governance, setting the market rules for (dis)investment in the built environment (Christopherson 1993). Financial deregulation and the increasing securitization of real estate removes owners from actual structures and moves locally determined value away from the underlying property. Determining a property’s true value requires detailed knowledge of the local real-estate market (Warf 1999). **Distant capitalists will only invest if the property is recognizable beyond its unique character embedded in space and if it can provide short-term returns**. When these conditions are met, the particularity of a building is transformed into the uniformity of a financial “instrument,” and place becomes subordinated to “a higher realm of ordering beyond territorialism: speed” (Douglas 1999:146).

# round 4 v. georgetown em

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#### Restrictions must legally mandate less production, not just regulate it

Anell 89

Chairman, WTO panel

"To examine, in the light of the relevant GATT provisions, the matter referred to the

CONTRACTING PARTIES by the United States in document L/6445 and to make such findings as will assist the CONTRACTING PARTIES in making the recommendations or in giving the rulings provided for in Article XXIII:2." 3. On 3 April 1989, the Council was informed that agreement had been reached on the following composition of the Panel (C/164): Composition Chairman: Mr. Lars E.R. Anell Members: Mr. Hugh W. Bartlett Mrs. Carmen Luz Guarda CANADA - IMPORT RESTRICTIONS ON ICE CREAM AND YOGHURT Report of the Panel adopted at the Forty-fifth Session of the CONTRACTING PARTIES on 5 December 1989 (L/6568 - 36S/68)

<http://www.wto.org/english/tratop_e/dispu_e/88icecrm.pdf>

The United States argued that Canada had failed to demonstrate that it effectively restricted domestic production of milk. The differentiation between "fluid" and "industrial" milk was an artificial one for administrative purposes; with regard to GATT obligations, the product at issue was raw milk from the cow, regardless of what further use was made of it. The use of the word "permitted" in Article XI:2(c)(i) required that there be a limitation on the total quantity of milk that domestic producers were authorized or allowed to produce or sell. The provincial controls on fluid milk did not restrict the quantities permitted to be produced; rather dairy farmers could produce and market as much milk as could be sold as beverage milk or table cream. There were no penalties for delivering more than a farmer's fluid milk quota, it was only if deliveries exceeded actual fluid milk usage or sales that it counted against his industrial milk quota. At least one province did not participate in this voluntary system, and another province had considered leaving it. Furthermore, Canada did not even prohibit the production or sale of milk that exceeded the Market Share Quota. The method used to calculate direct support payments on within-quota deliveries assured that most dairy farmers would completely recover all of their fixed and variable costs on their within-quota deliveries. The farmer was permitted to produce and market milk in excess of the quota, and perhaps had an economic incentive to do so. 27. The United States noted that in the past six years total industrial milk production had consistently exceeded the established Market Sharing Quota, and concluded that the Canadian system was a regulation of production but not a restriction of production. Proposals to amend Article XI:2(c)(i) to replace the word "restrict" with "regulate" had been defeated; what was required was the reduction of production. The results of the econometric analyses cited by Canada provided no indication of what would happen to milk production in the absence not only of the production quotas, but also of the accompanying high price guarantees which operated as incentives to produce. According to the official publication of the Canadian Dairy Commission, a key element of Canada's national dairy policy was to promote self-sufficiency in milk production. The effectiveness of the government supply controls had to be compared to what the situation would be in the absence of all government measures.

#### The decreases regulations, not restrictions. Voter for limits because they manipulate terminology to expand the hardest part of the rez to debate

Sinha 6

<http://www.indiankanoon.org/doc/437310/>

Supreme Court of India Union Of India & Ors vs M/S. Asian Food Industries on 7 November, 2006 Author: S.B. Sinha Bench: S Sinha, Mark, E Katju CASE NO.: Writ Petition (civil) 4695 of 2006 PETITIONER: Union of India & Ors. RESPONDENT: M/s. Asian Food Industries DATE OF JUDGMENT: 07/11/2006 BENCH: S.B. Sinha & Markandey Katju JUDGMENT: J U D G M E N T [Arising out of S.L.P. (Civil) No. 17008 of 2006] WITH CIVIL APPEAL NO. 4696 OF 2006 [Arising out of S.L.P. (Civil) No. 17558 of 2006] S.B. SINHA, J :

We may, however, notice that this Court in State of U.P. and Others v. M/s. Hindustan Aluminium Corpn. and others [AIR 1979 SC 1459] stated the law thus:

"It appears that a distinction between regulation and restriction or prohibition has always been drawn, ever since Municipal Corporation of the City of Toronto v. Virgo. Regulation promotes the freedom or the facility which is required to be regulated in the interest of all concerned, whereas prohibition obstructs or shuts off, or denies it to those to whom it is applied. The Oxford English Dictionary does not define regulate to include prohibition so that if it had been the intention to prohibit the supply, distribution, consumption or use of energy, the legislature would not have contented itself with the use of the word regulating without using the word prohibiting or some such word, to bring out that effect."

#### Production is extraction, conversion, and distribution of energy – excludes R&D

Koplow 4 Doug Koplow is the founder of Earth Track in Cambridge, MA. He has worked on natural resource subsidy issues for 20 years, primarily in the energy sector "Subsidies to Energy Industries" Encyclopedia of Energy Vol 5 2004www.earthtrack.net/files/Energy%20Encyclopedia,%20wv.pdf

3. SUBSIDIES THROUGH THE FUEL CYCLE

Because no two fuel cycles are exactly the same, examining subsidies through the context of a generic fuel cycle is instructive in providing an overall framework from which to understand how common subsidization policies work. Subsidies are grouped into preproduction (e.g., R&D, resource location), production (e.g., extraction, conversion/generation, distribution, accident risks), consumption, postproduction (e.g., decommissioning, reclamation), and externalities (e.g., energy security, environmental, health and safety).

3.1 Preproduction

Preproduction activities include research into new technologies, improving existing technologies, and market assessments to identify the location and quality of energy resources.

3.1.1 Research and Development

R&D subsidies to energy are common worldwide, generally through government-funded research or tax breaks. Proponents of R&D subsidies argue that because a portion of the financial returns from successful innovations cannot be captured by the innovator, the private sector will spend less than is appropriate given the aggregate returns to society. Empirical data assembled by Margolis and Kammen supported this claim, suggesting average social returns on R&D of 50% versus private returns of only 20 to 30%.

However, the general concept masks several potential concerns regarding energy R&D. First, ideas near commercialization have much lower spillover than does basic research, making subsidies harder to justify. Second, politics is often an important factor in R&D choices, especially regarding how the research plans are structured and the support for follow-on funding for existing projects.

Allocation bias is also a concern. Historical data on energy R&D (Table III) demonstrate that R&D spending has heavily favored nuclear and fossil energy across many countries. Although efficiency, renewables, and conservation have captured a higher share of public funds during recent years, the overall support remains skewed to a degree that may well have influenced the relative competitiveness of energy technologies. Extensive public support for energy R&D may also reduce the incentive for firms to invest themselves. U.S. company spending on R&D for the petroleum refining and extraction sector was roughly one-third the multi-industry average during the 1956-1998 period based on survey data from the U.S. National Science Foundation. For the electric, gas, and sanitary services sector, the value was one-twentieth, albeit during the more limited 1995-1998 period.

3.1.2 Resource Location

Governments frequently conduct surveys to identify the location and composition of energy resources. Although these have addressed wind or geothermal resources on occasion, they most often involve oil and gas. Plant siting is another area where public funds are used, primarily to assess risks from natural disasters such as earthquakes for large hydroelectric or nuclear installations. Survey information can be important to evaluate energy security risks and to support mineral leasing auctions, especially when bidders do not operate competitively. However, costs should be offset from lease sale revenues when evaluating the public return on these sales. Similarly, the costs of siting studies should be recovered from the beneficiary industries.

3.2 Production

Energy production includes all stages from the point of resource location through distribution to the final consumers. Specific items examined here include resource extraction, resource conversion (including electricity), the various distribution links to bring the energy resource to the point of final use, and accident risks.

#### Voting issue for limits

### T

#### Lack of agent spec is a voter—

#### Destroys topic education and turns solvency

Valentine 10 Scott Victor Valentine - Lee Kuan Yew School of Public Policy, National University of Singapore, Singapore, “Canada’s constitutional separation of (wind) power” Energy Policy, Volume 38, Issue 4, April 2010,

http://www.sciencedirect.com/science/article/pii/S0301421509009227

Should policymakers facilitate renewable energy capacity development through distributive policies (i.e. subsidies), regulatory policies (i.e. CO2 emission caps), redistributive policies (i.e. carbon taxes) or constituent policies (i.e. green energy campaigns) (Lowi, 1972)? A preponderance of research has gone into addressing this question from various conceptual perspectives, which include popular themes such as comparing the efficacy of various policy instruments (cf. Blakeway and White, 2005; EWEA, 2005; Menza and Vachona, 2006; cf. Lipp, 2007), championing the efficacy of one specific instrument (cf. Sorrell and Sijm, 2003; cf. Mathews, 2008), assessing the impact that socio-economic dynamics have on the selection or design of policy instruments (cf. Maruyama et al., 2007; cf. Huang and Wu, 2009), investigating policy instrument selection in stakeholder networks (cf. Rowlands, 2007; cf. Mander, 2008), investigating hurdles to effective policy instruments implementation (cf. Alvarez-Farizo and Hanley, 2002), and examining challenges associated with evaluating policy instrument efficacy (cf. Mallon, 2006; cf. Vine, 2008).

Despite the proliferation of studies on policy instruments in the renewable energy policy field, there are no prominent examples of studies which investigate the impact that the federal form of government has on strategic selection of policy instruments. Federal government systems are characterized by power-sharing between the central authority and the regions comprising the federation. For federal policymakers, the manner in which power is divided can pose significant policy-making problems (Thorlakson, 2003). Specifically, federal attempts to apply coercive policy instruments in policy areas of regional or concurrent (shared) authority can generate political, legal or operational resistance by regional authorities. Even when developing policy for areas under federal jurisdiction, regional authorities have to avail their various “thrust and riposte” tactics to undermine the efficacy of disagreeable federal policies (Braun et al., 2002). Given that there are 24 nations with a federal government structure (including the major economies of the United States, Germany, Canada, Australia, Russia, India, Spain, Brazil and Mexico), a formal enquiry into the impact that federal structure has on renewable energy policy instrument development is merited.

#### Wrecks aff ground—means they construct aff to avoid links but aren’t accountable for counterplan competition—clarification is aff conditionality

### K

#### Financialization of energy production is a neoliberal tool to subvert communal agency—fuels inequality and unsustainable practices

**Hildyard et al 2012** – \*founder and Director of The Corner House, a U.K. research and advocacy group focusing on human rights, the environment, and development, co-editor of The Ecologist, \*\*co-founder of the Durban Group for Climate Justice (February, Nicholas Hildyard, Larry Lohmann and Sarah Sexton, The Corner House, “Energy Security For What? For Whom?”, http://www.thecornerhouse.org.uk/sites/thecornerhouse.org.uk/files/Energy%20Security%20For%20Whom%20For%20What.pdf, WEA)

The neoliberal market-driven approach to energy policy in Europe and¶ North America that is actively promoted throughout the world by the¶ International Monetary Fund and the World Bank and through bilateral¶ investment treaties and the Energy Charter Treaty is barely 30 years¶ old. Prior to the 1980s, energy – oil, gas, coal and electricity – was¶ largely provided either by state monopolies at prices determined by the¶ state with investment centrally planned by government bureaucracies,¶ or by private monopolies subject to government oversight and regulation to protect users from excessive charges. Markets, in which for-profit companies competed with each to generate, distribute and supply¶ “energy”, were considered “hopelessly inadequate in providing appropriate energy supplies,”¶ 3¶ considered to be “the lifeblood of the world¶ economy.”4¶ “Moving to the market,” however, was proposed as a way of ensuring¶ investment in energy infrastructure – power plants, transmission systems and storage capacity – that would not only guarantee supplies to¶ consumers at cheaper prices but would also direct investment to the¶ most cost-effective means of reducing carbon emissions.¶ 5¶ But markets have singularly failed to deliver on these promises. Directly opposed to forms of social and economic organisation that seek¶ to guarantee the shared right of all to survival, market-based energy¶ policies have led to the exclusion of those who cannot afford to pay for¶ the energy they require to meet their basic needs. The **financialisation**¶ **of “energy**”– where the production and distribution of oil, gas and electricity is mediated and shaped not just by markets in general but by¶ financial markets in particular,¶ 6¶ and where capital is accumulated primarily through financial speculation rather than production – is also¶ **jeopardising investment in the infrastructure that might enable a just**¶ **transition** to a sustainable and equitable climatic future. Investment is¶ diverted into trading on money or the products of money, often creating¶ energy shortages in the process through the speculative “gaming” of¶ energy markets. Just as energy is now “saturated with the language of¶ security”,¶ 7¶ so, too, it is “infused by the logic of finance”,¶ 8¶ even though¶ financialisation is conspicuously absent from energy security narratives.¶ Market-led policies **marginalise the role of communities** and ordinary¶ people in decision-making: instead “choices” about future energy technologies and use are left to those who have economic and political¶ power within the range of markets that affect energy. The input of¶ consumers is reduced to the (limited) decisions they can make within¶ energy retail markets based on price signals alone: the cost of electricity or gas. Debates over **how society might be differently organised** to¶ generate and use (less) “energy” in different ways are entirely sidelined,¶ except where they might provide opportunities to make money.¶ Meanwhile, efforts to address climate change through carbon trading¶ and other market mechanisms are fatally delaying the action that is¶ necessary to prevent runaway global climatic instability, whilst at the¶ same time creating new sources of conflict and insecurity.

#### Vote neg to eschew neoliberal frameworks—they’re unsustainable and insulate decisionmaking from deliberation and alternative assumptions needed to solve

**Adaman and Madra** **2012** – \*economic professor at Bogazici University in Istanbul, \*\*PhD from UMass-Amherst, economics professor (Fikret and Yahya, Bogazici University, “Understanding Neoliberalism as Economization: The Case of the Ecology”, http://www.econ.boun.edu.tr/content/wp/EC2012\_04.pdf, WEA)

The reduction of ecological valuation through a market mechanism (or various techniques) to a ¶ mere aggregation of individual subjective valuations—which is the main premise of neoliberal ¶ ideology—may be inappropriate for complex and uncertain phenomena ridden with ¶ incommensurabilities and inter- and intra-generational distributional conflicts, such as global ¶ warming, where individual valuations will have clear implications for all living beings. Indeed, ¶ in making decisions with substantial consequences pertaining to our current life as well as our ¶ future (such as the overall growth rate, distributional trajectories, technological path, ¶ consumption habits, risk attitude [say, vis-à-vis nuclear energy]), the market response or the ¶ aggregation of individuals’ valuation through a set of available techniques (e.g., the contingent ¶ valuation) may substantially differ from what could be derived through **collective deliberation** ¶ and negotiation of various stakeholders including the scientific community (see, e.g., ¶ Özkaynak, Adaman and Devine, 2012). This criticism applies not only to neoliberal positions ¶ that favor the current unequal distribution of power but also to the Post-Walrasian one which ¶ although concerned with distributional issues keeps relying on individualist ontologies of ¶ calculative and calculable agency. Indeed, there is a growing theoretical and applied literature ¶ arguing that in incommensurable cases, where all relevant aspects cannot be captured in a single ¶ dimension (such as those derived from monetary cost-benefit analyses), a multi-criteria ¶ methodology would seem better placed, as it will be possible to involve not only economic but ¶ also political, moral, scientific and cultural inputs from a variety of stakeholders (see, e.g., ¶ Martinez-Alier, Munda and O’Neil, 1999; Munda, 2008). The key promise of the multicriteria decision-making tool and other similar participatory and deliberatory dispositifs is that ¶ **rather than finding a “solution”** to a conflictual decision, they shed light on the multifaceted¶ dimensions of the problem at hand and thus facilitate the consensus-building process from ¶ below (see, e.g., Adaman, 2012). In this regard, they constitute a formidable path to be ¶ explored as an alternative to the surreptitiously normative neoliberal governmental dispositifs, ¶ designed by experts from above, under the assumption that all actors are calculative and ¶ calculable.

The current indiscriminate application of neoliberal policies over the entire scope of the social ¶ field has brought about such political, economic, cultural and ecological devastation that any ¶ type of reform suggestion along the line to halt this process is met with much welcoming by ¶ many of us—even if some of them are still **acting as if economic incentives are the only viable** ¶ **policy tool** in town. Consider the case of carbon markets, for example, where the cap is ¶ decided either through a scientific body or through aggregating individuals’ preferences. The ¶ fact of the matter is that, far from addressing the inefficiencies that emanate from opportunistic ¶ and manipulative activities, these mechanisms are vulnerable precisely because they end up¶ soliciting manipulative, predatory, and rent-seeking behavior (**because they are** **designed** to ¶ function **under such behavioral assumptions** in the first place). In other words, these solutions ¶ subject a commons such as global climate into the economic logic of markets and ¶ “performatively” turn it into an object of strategic-calculative logic (MacKenzie, Muniesa and ¶ Siu, 2007; Çalışkan and Callon, 2009; MacKenzie, 2009; Çalışkan and Callon, 2010; see also ¶ Spash, 2011). Consider, furthermore, the case of price-per-bag policies. Laboratory ¶ experiments and anthropological evidence both suggest that charging a price for some activity ¶ that should in fact be treated as a duty or a commitment may well create perverse results (see, ¶ e.g., Campbell, 1998; Bowles and Hwang, 2008). Monetizing the pollution-generating activity ¶ instead of limiting the use of plastic bags (along with an awareness program) may well result in ¶ an increase of the unwanted activity. Similarly, while nationalization is the trend in areas of ¶ natural resource extraction and energy production, many continue to argue for privatization ¶ and private-public partnerships instead. Nevertheless, the problem with the private versus ¶ public dichotomy, given our reading of the contemporary state as an agent of economization, is ¶ precisely that both forms, to the extent that they are informed by the different variants of ¶ neoliberal reason, serve to isolate these critical areas from the deliberations and political ¶ demands of various stakeholders and the general public, **limiting the only channels for** ¶ **communication** available to them to the price (or price-like) mechanisms. However, perhaps ¶ most importantly, neither can be immune towards all sorts of rent-seeking activities that occur ¶ behind the close doors of the technocracy that operates in the area where state shades into ¶ market in the various forms of dispositifs.

Needless to say, economic activities that generate pollution and consume energy are not recent ¶ phenomena that are exclusive to what is now increasingly being called the neoliberal era. If ¶ anything, postwar Keynesian developmentalism was possible precisely because of the ¶ availability of cheap oil, and is responsible for an enormous amount of environmental pollution ¶ and ecological degradation (Mitchell, 2011). In this sense, it would be wrong to present ¶ neoliberal as being the only responsible mode of governmentality for the dual crises of climate ¶ change and natural resource depletion. Yet, this does not change the fact that the neoliberal ¶ reason (in its free-market and mechanism-design variations) is pushing its agenda in an era ¶ where both of these crises are reaching catastrophic levels, and it is highly questionable whether ¶ neoliberal methods of handling the environmental pollution and the extraction crisis will be¶ capable of addressing long-term concerns.

### DA

#### Plan wrecks oil prices

Steve A. Yetiv and Lowell Feld September 2007; Yetiv, Professor of political science at Old Dominion University; Feld, senior international oil markets analyst at the U.S. Energy Information Administration “America’s Oil Market Power The Unused Weapon Against Iran” World Policy Journal 2007 24: 53, Sage Journals

How could the United States develop its latent oil market power? First and foremost, achieving this goal would require a serious shift in U.S. energy policy. Such a shift is achievable and could sharply decrease U.S. (and world) oil consumption, dramatically altering oil market psychology. Oil futures traders who largely set the price of oil would have to consider that demand for oil would drop from current expectations. As a result, they would likely decrease the pur- chase of oil futures, thus causing a drop in the price of oil. Even before the impact of America’s new energy policies would be felt, oil prices would almost certainly fall on the expectation by oil traders of declining future U.S. oil demand. A major policy shift by the United States could also move world oil markets out of the high anxiety state they have been operating in for several years now: increase spare capacity and market anxiety almost inevitably will subside, because of the creation of a margin of error in the event of perceived threats to supply or actual disruptions.

#### Kills Russia

Eric Reguly 9-15-2012; The Globe and Mail, “For Russia, high energy prices a necessity, not a luxury”

<http://m.theglobeandmail.com/report-on-business/international-business/european-business/for-russia-high-energy-prices-a-necessity-not-a-luxury/article4546314/?service=mobile>

No wonder the Kremlin is ramping up public spending even as its debt-choked European neighbours are doing the opposite. Russia’s social contract, in which the masses agree to stay out of the Kremlin’s way as long as living standards rise, appears to be demanding more and more helicopter drops of bundles of cash. If the spending slows down, the Kremlin’s fine balancing act may fall apart. Mr. Putin’s government can afford to spend as long as energy prices remain buoyant. Increasingly, Russia is an oil and natural gas economy. It is roughly tied with Saudi Arabia as the world’s top oil exporter. State-controlled Gazprom, the world’s biggest gas producer, is one of Russia’s biggest export earners and supplies about half of Europe’s gas consumption. Much to the Kremlin’s delight, oil prices have held up remarkably well in the face of the feeble American economic recovery, the recession in the 17-country euro zone and slowing growth in China. On Friday, Brent crude, the best measure of global prices, traded at more than $117 (U.S.) a barrel, about three times its post-2008 low. But Russia’s energy equation isn’t as simple as that. Just as surging U.S. shale oil and shale gas production are threatening Canadian energy exports, European shale gas and supplies from North Africa are threatening Russia’s gas stranglehold on Europe. And shale oil, no matter where it is produced, will have a dampening effect on global oil prices. The United States is becoming an energy superpower. That doesn’t mean that the country will suddenly become an energy exporter. It does mean that its energy imports will continue to shrink, denying export opportunities for Russia, OPEC and Canada. Oil and gas prices, and market share, can make or break Russia. The Russian economic collapse of the 1990s was largely driven by sinking crude prices, which dipped below $11 in 1998. Russia duly defaulted that year, wiping out most of its banks and sending the ratio of national debt to gross domestic product to more than 80 per cent. Russia was saved when oil prices reversed direction, reaching $147 before the 2008 financial crisis hit. The energy bonanza – oil contributes about 50 per cent of federal government revenues – pushed down its debt to a mere 10 per cent of GDP (Italy’s is 120 per cent). The embarrassment of riches proved irresistible to the government. Spending on social programs, pensions, the military and special projects surged. Russia just spent an obscene $20-billion renovating Vladivostock, the port city on the Sea of Japan, for this month’s Asia-Pacific Economic Co-operation forum, and will spent a similar amount to fix up Sochi in Russia’s deep south for the 2014 Winter Olympics. High energy prices have gone from a luxury to a necessity. Various analysts estimated last year that the Kremlin’s “break-even” oil price – where the budget balances – at about $100 a barrel. It has no doubt climbed since then. The Economist Intelligence Unit recently put the budget-clearing figure at $120. Citibank has calculated that every $10 decline in the price of oil reduces the Russian government’s revenues by $20-billion. The Kremlin must be terrified that their energy gusher will turn into a trickle as the shale oil and gas revolution takes over the planet. European shale is nowhere near as developed as that of the U.S., but the reserves are there. Take Poland. Last year, the U.S. Department of Energy put Poland’s gas reserves at 171 trillion cubic feet, or about seven times the annual consumption in the U.S., the world’s biggest market. The estimate by the Polish Geological Institute was considerably less, but no matter how you cut it, Poland is emerging as a huge threat to Gazprom’s gas export machine. So is the European Commission’s just-launched anti-trust investigation into Gazprom. The EC competition’s directorate, which almost never loses an abuse-of-dominance case, is examining whether Gazprom is hindering the free flow of gas in Europe through “no-resale” clauses and damaging competition by preventing third-party access to its pipelines. It is also examining Gazprom’s standard practice of linking gas prices to oil prices, which has protected the company from the gas-price crunch. Already, Gazprom is letting some of its biggest European customers renegotiate long-term contracts. There is little doubt that Gazprom’s best days in Europe are over. If the rise of shale oil hurts Russia’s oil exports, the Kremlin is going to have a miserable time balancing its budgets. Which brings us back to the rise of political dissent in Russia. The protests are getting more frequent and the Kremlin’s crackdown more brutal. If it’s this bad now, what might it be like if the government can no longer use lavish spending to raise living standards? If the value of Russia’s energy exports decline, protests like the one that landed Pussy Riot in prison could become commonplace. In 2009, when he was president, Dmitry Medvedev, who is now prime minister, called his country’s dependence on energy “primitive.” Today, he could add that it’s socially dangerous.

#### Extinction

Steven David, January/February 1999;Professor of International Relations and Associate Dean of Academic Affairs at the Johns Hopkins University, FOREIGN AFFAIRS, **,** http://www.foreignaffairs.org/19990101faessay955/steven-r-david/saving-america-from-the-coming-civilwars.html

If internal war does strike Russia, economic deterioration will be a prime cause. From 1989 to the present, the GDP has fallen by 50 percent. In a society where, ten years ago, unemployment scarcely existed, it reached 9.5 percent in 1997 with many economists declaring the true figure to be much higher. Twenty-two percent of Russians live below the official poverty line (earning less than $ 70 a month). Modern Russia can neither collect taxes (it gathers only half the revenue it is due) nor significantly cut spending. Reformers tout privatization as the country's cure-all, but in a land without well-defined property rights or contract law and where subsidies remain a way of life, the prospects for transition to an American-style capitalist economy look remote at best. As the massive devaluation of the ruble and the current political crisis show, Russia's condition is even worse than most analysts feared. If conditions get worse, even the stoic Russian people will soon run out of patience.  A future conflict would quickly draw in Russia's military. In the Soviet days civilian rule kept the powerful armed forces in check. But with the Communist Party out of office, what little civilian control remains relies on an exceedingly fragile foundation -- personal friendships between government leaders and military commanders. Meanwhile, the morale of Russian soldiers has fallen to a dangerous low. Drastic cuts in spending mean inadequate pay, housing, and medical care. A new emphasis on domestic missions has created an ideological split between the old and new guard in the military leadership, increasing the risk that disgruntled generals may enter the political fray and feeding the resentment of soldiers who dislike being used as a national police force. Newly enhanced ties between military units and local authorities pose another danger. Soldiers grow ever more dependent on local governments for housing, food, and wages. Draftees serve closer to home, and new laws have increased local control over the armed forces. Were a conflict to emerge between a regional power and Moscow, it is not at all clear which side the military would support.  Divining the military's allegiance is crucial, however, since the structure of the Russian Federation makes it virtually certain that regional conflicts will continue to erupt. Russia's 89 republics, krais, and oblasts grow ever more independent in a system that does little to keep them together. As the central government finds itself unable to force its will beyond Moscow (if even that far), power devolves to the periphery. With the economy collapsing, republics feel less and less incentive to pay taxes to Moscow when they receive so little in return. Three-quarters of them already have their own constitutions, nearly all of which make some claim to sovereignty. Strong ethnic bonds promoted by shortsighted Soviet policies may motivate non-Russians to secede from the Federation. Chechnya's successful revolt against Russian control inspired similar movements for autonomy and independence throughout the country. If these rebellions spread and Moscow responds with force, civil war is likely.  Should Russia succumb to internal war, the consequences for the United States and Europe will be severe. A major power like Russia -- even though in decline -- does not suffer civil war quietly or alone. An embattled Russian Federation might provoke opportunistic attacks from enemies such as China**.** Massive flows of refugees would pour into central and western Europe. Armed struggles in Russia could easily spill into its neighbors. Damage from the fighting, particularly attacks on nuclear plants, would poison the environment of much of Europe and Asia. Within Russia, the consequences would be even worse. Just as the sheer brutality of the last Russian civil war laid the basis for the privations of Soviet communism, a second civil war might produce another horrific regime.

### DA

#### Hagel getting confirmed now

Aaron Blake (writer for the Washington Post) January 15, 2013 “Hagel's path to confirmation clears, but hearings loom” ProQuest¶

Sen. Charles **Schumer's** (D-N.Y.) **decision to support** Chuck **Hagel's** nomination for Secretary of Defense **means the job is** now **Hagel's** for the taking -- provided he can avoid a major screw-up at his confirmation hearings.¶ Schumer's annou ncement Tuesday that he intended to support Hagel's nomination -- after some initial hesitation -- signals that Senate Democrats will likely be united in support of President Obama's nominee to head the Pentagon.¶ Schumer, as we've written before, was the most important Democrat in this whole process, given his pro-Israel record and his stature as a party leader. And his support means Hagel has cleared a major hurdle, with other Democrats now likely to feel more comfortable supporting him.¶ Republicans acknowledged after Schumer's announcement that they would have to be almost completely united in their opposition if they want to take Hagel down.¶ But that becomes much harder without some Democrats joining in opposition.¶ Democrats have 55 votes in the Senate, which means that with a unified caucus they would need to pick off just five Republicans to overcome a filibuster. That seems pretty doable even in a chamber in which Hagel has alienated many of his former GOP colleagues.¶ From here, all of this depends very much on how the confirmation hearings go. Even Schumer seemed to temper his support for Hagel a little by saying he is "currently prepared" to vote for him.¶ "While the Senate confirmation process must be allowed to run its course, it is my hope that Senator Hagel's thorough explanations will remove any lingering controversy regarding his nomination," Schumer said.¶ We don't mean to say that Schumer isn't on-board, just that hearings matter and Hagel will need to be on his game. And other Democrats, including Sens. Richard Blumenthal (D-Conn.) and Kirsten Gillibrand (D-N.Y.), have expressed significant concerns about Hagel, so he hasn't locked down all Democrats just yet.¶ But it seems only a matter of time before these Democrats join Schumer in support, and at this point, the GOP base isn't overwhelmingly anti-Hagel. About the only thing that could change either of those is a major hiccup at his confirmation hearings.

#### Plan unpopular—no supporters

Vastag, ‘12

[Brian, Washington Post, 6-25, “Budget cuts threaten pursuit of nuclear fusion as a clean energy source,” http://www.washingtonpost.com/national/health-science/budget-cuts-threaten-pursuit-of-nuclear-fusion-as-a-clean-energy-source/2012/06/25/gJQAKlpS2V\_story.html]

Fusion scientists have plenty of possible solutions they want to test, said George “Hutch” Neilson, the Princeton lab’s deputy head. But he said there is no national or international road map for moving from the relatively small plasma experiments of today to the operational power plants of tomorrow. “There’s enormous debate on how to get there,” says Prager. And little political support in the United States for the needed investment. Obama has said that he favors an “all of the above” energy strategy: more drilling for gas and oil, more investment in solar and wind, more traditional nuclear. Fusion, however, is absent from the list. Energy Secretary Steven Chu rarely mentions it. But at a March Senate hearing on his agency’s budget request, Sen. Diane Feinstein (D-Calif.) forced the Nobel Prize-winning physicist to address the president’s proposed cuts.

#### PC key

Michael Falcone (writer for ABC News) 1/7, 2013 “Cabinet Shakeup: No Such Thing As A ‘Slam Dunk’ (The Note)” http://abcnews.go.com/blogs/politics/2013/01/cabinet-shakeup-no-such-thing-as-a-slam-dunk-the-note/

But as ABC Chief White House Correspondent Jon Karl notes today, the confirmation of Hagel, a former Republican senator, “will be no slam dunk”: “Senate Democrats tell me there is no guarantee Hagel will win confirmation and that, as of right now, there are enough Democratic Senators with serious concerns about Hagel to put him below 50 votes. The bottom line: He may ultimately win confirmation, but not before a bloody fight in the Senate. On the plus side, Hagel is a decorated Vietnam veteran and a former Republican Senator who’s views on military issues closely match the president’s views. But he has already come under withering criticism from across the political spectrum. Among other things, he has come under fire for controversial comments on Israel (in 2008, he referred to Israel’s US supporters as ‘the Jewish lobby’), his opposition to some sanctions against Iran, and his suggestion, also in 2008, that the U.S. should negotiate with Hamas.” Time Magazine’s Mark Halperin had a similar prediction: “If Hagel has a good confirmation sherpa and performs well in his courtesy calls and at his hearings, he will likely be confirmed. But/and at a pretty high cost. Expect a LOT of people to want to testify against him. And don’t rule out a filibuster of this nomination, which would, obviously, change the math.” http://ti.me/VvwfU0 More on the rough road ahead for Hagel from ABC’s Martha Raddatz on”Good Morning America” today. WATCH: http://abcn.ws/VNTZBZ NOTED! ABC’s RICK KLEIN: It’s getting crowded in here. One consequence of the un-grand bargain is that Washington will be fighting fiscal battles again early this year — then likely later, too. The result is not just a feeling of déjà vu but of suffocation. Republicans and **any coalition** that wants to slow President Obama’s agenda — on immigration, gun control, **energy policy,** what have you — has the perfect way to do so now, perhaps indefinitely. “None of these issues, I think, will have the kind of priority that spending and debt are going to have over the next two or three months,” Senate Minority Leader Mitch McConnell said on ABC’s “This Week” yesterday. ABC’s AMY WALTER: For all the hand wringing about upcoming fights between the White House and Congress over Chuck Hagel, the debt ceiling and the sequester, a reminder that the two branches were designed to challenge each other. To be sure, this is a frustrating process— and one that has resulted in less than ideal outcomes. Voters say they like the idea of divided government, but they don’t like the reality of it. “THIS WEEK” REWIND: MCCONNELL: THE TAX ISSUE IS FINISHED. As President Obama and Republicans slowly approach the next round of deficit-reduction talks, Senate Minority Leader Mitch McConnell drew a line in the sand, in his interview with ABC’s George Stephanopoulos: no more tax increases. McConnell: “The tax issue is finished, over, completed. That’s behind us. Now the question is, what are we going to do about the biggest problem confronting our country and our future? And that’s our spending addiction. It’s time to confront it. The president surely knows that. I mean, he has mentioned it both publicly and privately. The time to confront it is now.” http://abcn.ws/Xbz4uz HEITKAMP: GUNG-CONTROL PROPOSALS ‘WAY IN EXTREME.’ After The Washington Post reported that Vice President Biden’s working group will press a broad gun-control agenday, newly elected Democratic Sen. Heidi Heitkamp, N.D., told ABC’s George Stephanopoulos those proposals would go to far. Heitkamp: “Let’s start addressing the problem. And to me, one of the issues that I think comes — screams out of this is the issue of mental health and the care for the mentally ill in our country, especially the dangerously mentally ill. And so we need to have a broad discussion before we start talking about gun control. … I think you need to put everything on the table, but what I hear from the administration — and if the Washington Post is to be believed — that’s way — way in extreme of what I think is necessary or even should be talked about. And it’s not going to pass.” GRETA VAN SUSTEREN GOES ON THE RECORD (WITH ABC NEWS): Fox News’ Greta Van Susteren has interviewed some of the biggest names in U.S. politics on her show, “On The Record,” but you’ll never guess who her dream guest dream political guest is. Van Susteren, who appeared on the “This Week” roundtable Sunday, answered viewer questions from Facebook and Twitter for an “All Politics is Social” web exclusive hosted by ABC’s Kaye Foley. About that dream guest, here’s her answer: “Bo, the first dog. I love animals. I’d love to be on Animal Planet. On Animal Planet you aren’t dealing with death and destruction and people fighting with each other all the time. To the extent that Bo is a part of politics, I’d love to interview Bo. Plus, I love the fact that he looks like he’s wearing white knee socks. Bo is my favorite.” WATCH the full interview: http://abcn.ws/13bVdfF THE BUZZ: with ABC’s Chris Good (@c\_good) SCOTUS RETURNS: GAY MARRIAGE, AFFIRMATIVE ACTION, VOTING RIGHTS. The Supreme Court returns to the bench today, and ABC’s Ariane de Vogue reports: The justices will hear two potentially blockbuster cases in March concerning gay marriage. One of the cases–Hollingsworth v. Perry–addresses whether there is a fundamental right to same-sex marriage. The other–Windsor v. United States–deals with the federal law that defines marriage as between a man and a woman. In both cases, the court will hear arguments on potential procedural obstacles that could stop it from getting to the core constitutional questions. The court will also hear a case challenging a key provision of the Voting Rights Act. Section 5 of the law says that certain states with a history of voter discrimination must clear any changes to their election laws with federal officials in Washington. Lawyers for Shelby County, Ala., are challenging the constitutionality of Section 5. The case, called Shelby County v. Holder, will be argued Feb. 27. The day before, the court will hear arguments in Maryland v. King, a case about whether Maryland officials can collect DNA from someone who has been arrested but not convicted of a crime. http://abcn.ws/WD3Fir SANDY AND THE CLIFF: WILL PAUL RYAN’S VOTES HAUNT HIM IN 2016? Paul Ryan voted in favor of the “fiscal cliff” tax deal but against a Hurricane Sandy relief bill that would add $9.7 billion in debt. ABC’s Shushannah Walshe reports on the potential implications for 2016: The two votes four years from now may mean nothing or could haunt Ryan if he decides to run for president in 2016, depending on who is battling for the nomination. The fiscal cliff vote could become an issue, particularly if his opponent is Florida Sen. Marco Rubio who could highlight the fact that Ryan voted for the measure while Rubio voted against it. The Sandy vote could also be resurrected if his rival is New Jersey Gov. Chris Christie who blasted members of his own party this week when Boehner decided not to vote on a $60 billion Sandy relief package after assuring lawmakers from the affected he states he would. … Will Ryan be more vocal on the looming battle to raise the debt ceiling? It will be one to watch. http://abcn.ws/Sb0YZE OBAMA’S VACATION BY THE NUMBERS. With President Obama returning from a nine-day vacation in Hawaii with family and friends, ABC’s Mary Bruce reports: Obama played FIVE rounds of golf with SEVEN different partners, spending roughly THIRTY hours on TWO different courses on Oahu. The president made FIVE early morning trips to the gym at the nearby Marine Base at Kaneohe Bay. … The Obamas ventured out for dinner with friends FOUR times, leaving their Kailua vacation home for gourmet Japanese meals at Nobu and Morimoto … The president interrupted his vacation for SIX days to negotiate the “fiscal cliff” in Washington. All told, he will have spent roughly FORTY hours on Air Force One flying between D.C. and Hawaii. http://abcn.ws/WA0xUx PELOSI: MORE TAXES IN NEXT CLIFF DEAL. The fiscal cliff isn’t quite over, and House Speaker Nancy Pelosi says tax revenues must be on the table as President Obama and congressional Republicans negotiate over how to avert budget sequestration. The Hill’s Mike Lillis reports: “‘In this legislation we had $620 billion, very significant … changing the high-end tax rate to 39.6 percent. But that is not enough on the revenue side,’ Pelosi told CBS’s Bob Schieffer in an interview taped Friday. Without offering many specifics, the California Democrat said she wants to scour the tax code for unnecessary loopholes and ‘unfair’ benefits that help those–either companies or individuals–who don’t need it.” http://bit.ly/WnUi5y CHUCK HAGEL: LET THE SNIPING BEGIN. Rumblings on Capitol Hill, already, are not good. Politico’s Scott Wong and Manu Raju report: “Sen. Lindsey Graham (R-S.C.), an Air Force reservist who serves on the Armed Services Committee that will consider the nod, said Hagel would hold the ‘most antagonistic’ views toward Israel of any defense secretary in U.S. history. … ‘It is a strange signal for the White House to send that they are willing to fight for Hagel but not Rice,’ one Senate Democratic aide said Sunday. ‘Democrats are not currently unified behind Hagel, and it will take some real **work by the administration** to get them there, if it’s even possible.’ ‘I can’t imagine why [Obama] would choose to burn his political capital **on this** nomination. For what? There is no constituency for Chuck Hagel,’ one senior GOP aide said. ‘Obama will expend every ounce of political capital he has to get him across the finish line. Dems will hate this.” <http://politi.co/VFMgc7>

#### Hagel is key to soft landing on a litany of critical military transitions—the impact is global conflict

Jessie Daniels (Truman National Security Project Fellow, worked in the US Senate) 1/7, 2013 “Chuck Hagel Nomination: A Look At the Security Threats He Will Face” http://www.policymic.com/articles/21946/chuck-hagel-would-be-a-defense-secretary-for-the-21st-century

As President Obama heads into his second term, and a new cabinet comes into shape, attention now focuses on the leading choice for Secretary of Defense: Chuck Hagel. As the Chairman of the Atlantic Council, and former Nebraska GOP Senator, Hagel certainly has the policy chops and political bona fides to take over the reins from the current Secretary Leon Panetta. The next secretary of defense will immediately be faced with managing American commitments and new priorities. The Pentagon will continue its rebalance — or "pivot" — toward the Asia-Pacific, where the U.S. has already been bolstering its presence in the region. At the same time, the next secretary of defense will preside over a transition in Afghanistan that insiders say appears harder than anticipated — both politically and operationally. Then there's the Middle East at large, which presents a separate set of challenges: Egypt's rocky political transitions, an intransigent Iran, and escalating violence in Syria. Key in managing the U.S. role in each and all of these situations is recognizing the limits of American power and influence. Fortunately, Hagel gets how complex the picture is, and would be committed to ensuring that the U.S. military does not become overextended yet again. America's commitments will also be shaped by Pentagon budget reforms. The Defense Department is scheduled to trim $487 billion in spending over the next decade. If the sequester cuts eventually do go into effect — the fiscal cliff deal only delayed them by two months — the Pentagon will face an additional $500 billion in cuts. If confirmed as the next secretary of defense, Hagel would already come into the position with the mindset that the Defense budget is "bloated." Moreover, his political experience on Capitol Hill would prove useful in guiding the department through reforms that, though necessary, are likely to be highly politicized and contentious. Aside from these near-term challenges, the next secretary of defense will also need to prepare for 21st century threats. Tomorrow's threats could just as easily come from non-state actors or take place in cyberspace. Issues once unconnected to national security — such as the environment — now play critical roles for America's military, as resource insecurity (like water or energy) can escalate the risk of conflict. During his time in the Senate and now at the Atlantic Council, Hagel has been a strategic thinker who understands the interconnectedness of an array of threats. He has demonstrated the ability to understand the terrain of these new battlefields, and would be well-prepared shape the military as it prepares for this new security environment. Considering the overall breadth and depth of his experience, Chuck Hagel would bring many relevant strengths to the table — which is all the more important, since the next Pentagon chief will find a full plate of challenges upon arrival.

### CP

#### The United States Federal Government should ban nuclear weapons testing.

### CP

#### The United States Federal Government should eliminate direct federal funding for energy production from direct drive fusion in federally funded research and development centers. The United States Federal Government should offer substantial, permanent tax credits for private sector research and development for from direct drive fusion in federally funded research and development centers valued equivalently to the amount of funding that the affirmative provides in their plan. These tax credits should be annually adjusted for inflation, not be limited to first movers, and not be subject to megawatt limitations.

#### Tax credits are sufficient incentives to spur new reactor development

**Gray, 9** (John, “Choosing the Nuclear Option: The Case for a Strong Regulatory Response to Encourage Nuclear Energy Development” 41 Ariz. St. L.J. 315, Spring, lexis)

Furthermore, an effective nuclear energy policy combines these regulatory options with other incentives for the nuclear industry, helping businesses overcome nuclear power's artificially high capital costs. Because capital expenses and obstacles are a major factor in nuclear power's stagnation, further government support would direct energy policy toward nuclear power in the short-term, allowing its long-term cost-effectiveness to flourish. n179 Although the Energy Policy Act of 2005 began this route, authorizing loan guarantees, production tax credits, and private sector investment protection, n180 continued support is required. For example, government **tax credits for first-mover plants** would create a strong incentive for businesses to be the first to market with new nuclear technology; the initial success would spur additional interest in the industry, encouraging development at an economic price. n181

#### Government demonstrations increase overall costs and inhibit commercialization, incentives for private R&D are superior

**Montgomery, 8** – Vice President of CRA International, directs CRA's Environment Practice. He is an internationally recognized authority in energy and environmental policy and regulation (W. David, “Developing Clean, Innovative Commercial Energy: Will Proposed Federal Subsidies Hurt or Help,” George C. Marshall Institute, 6/13, <http://www.marshall.org/pdf/materials/607.pdf>

This leads me to my conclusion, which is that we need to think about designing direct incentives at the R&D stage. There is really no reason to think about the government doing anything other than putting a price on carbon in order to get those technologies deployed in the market. So let’s take a look at those two ends of the problem. First, let’s talk about deployment and try to distinguish deployment from demonstration. I would argue that **a direct** **government role in** promoting **deployment** of technology for climate purposes is, first, unnecessary, because private investors can expect to capture the rewards of that innovation. The only thing the government needs to do is deal with the primary issue of climate policy, which is putting a price on CO2 emissions, rewarding technologies that have low CO2 emissions, and penalizing technologies that have high CO2 emissions. Then the market can sort it out. What I think we find in policymaking, and I think we have found this for decades, is that funding of large-scale commercial demonstrations really just means the government is picking technology winners and deciding to put billions of dollars into promoting one of them. It is an expedient based on an unwillingness to put in place a broader energy policy that actually deals with the policy problem. So it is working at the end of pushing on the technologies, “pushing on the rope,” if you like, rather than creating a policy which broadly changes the market environment for these policies. The other part, and we can see this very clearly in the analysis we have done of the recent energy bills, is that picking technologies just increases the cost of reducing CO2 emissions. For example, for the electric power sector, we could think about putting a cap on CO2 emissions from electricity generation. It would be better if it is broader, but we could think about doing that. And we could also have policies that require a renewable portfolio standard, for example, we could say that utilities must use a certain amount of what is classified as renewable, basically wind, solar, and biomass. Well, the two most cost-effective ways that are available on a broad scale for reducing greenhouse gas emissions are nuclear power and coal with carbon capture and sequestration, both of which are pushed out of the market by a renewable portfolio standard. Picking those renewable technologies and promoting them separately actually increases the cost of meeting that kind of cap for the utility sector overall.¶ It is this funding of large-scale demonstration projects, with the notion of producing a commercial technology and getting it into the market, where government failures have been most prominent. Everybody should read Linda Cohen and Roger Noll’s book on the pork barrel politics of energy R&D. This is a case where government is necessarily picking winners. The large scale of these projects attracts earmarking and makes the choice of projects something that goes to whomever has the most powerful political backers, rather than anything that has to do with the economics or the science and engineering of developing new technologies. I don’t think I need to go on with this much longer because there was an excellent example in the last couple of weeks. Secretary of Energy Bodman announced that the Department of Energy was going to cancel funding of a huge FutureGen demonstration project for carbon capture and sequestration. His reason was that the costs had been going up, and the private sector participants were unwilling to pay any of those increases in cost. He decided that this was good evidence that the project should not be continued. And he cancelled it. I thought this was a history-making event. This is the first time in my thirty-five years in Washington that a government agency voluntarily canceled a large-scale project, after it was underway, because they found things out that made it proper to cancel it. What happened? Three days later the senator for the state in which that project was going to be built put language into an authorization bill telling DOE it could not cancel the project. I think we have no hope of avoiding potential damages from climate change unless Congress stops doing this. I would say this is the second biggest obstacle to dealing with climate risks. The first biggest obstacle is that China and India, who are the world’s largest contributors of greenhouse gas emissions, are not willing to do anything at this point to reduce their emissions. The second biggest problem is that we need an effective R&D policy that creates new technologies, and if Congress continues with what they have done in the past and what they did with FutureGen, there is no hope of getting it. That is a task for all of you to go back and get to work on! Getting technology off the shelf is the right role for carbon pricing. Putting a price on CO2 emissions sends the right signal to private investors to build a demonstration plant, to put their money into figuring out how to get integrated gasification with combined cycle to work with coal, to do it more cheaply with more availability. There are a lot of things the private sector needs to do. The problem is that unless we have R&D first, the price is going to be much too high because we need the breakthroughs and the basis for new technology for the private sector to work on. The other part of it is that the price that it is going to take to deploy a successful technology is far lower than what it takes to motivate the R&D that will create it. That is the real policy problem that I see investors facing and this gets back to the credibility issue. If a massive amount of private investment by the electric power sector in carbon capture and sequestration or a massive investment by the biotechnology sector produced a biofuel that was not an environmental disaster and could be deployed widely and produce cheaply and efficiently, that would mean government wouldn’t need to put quite so high a price on carbon any more. It would be relatively cheap to achieve carbon goals, and therefore, all of the incentives for government would put a price on carbon that is sufficient to lead that technology to be deployed and will not provide any profits for those who had originally developed it. So we get back to the point that it is really necessary for the government to provide incentives at the R&D stage. And there I would say we clearly need both direct funding for basic science and credible incentives for private sector R&D. I suspect that the scale that we are looking at here is far more than doubling current DOE funding for technology in order to create the kind of breakthroughs that it takes to achieve net zero carbon emissions.

#### Government R&D funding is manipulated politically – it creates incentives to suppress data and this inhibits overall development

**Sutherland and Taylor, 02** - \*professor of law at George Mason University and a consulting economist AND \*\*director of natural resource studies at the Cato Institute. (Ronald and Jerry, “Time to Overhaul Federal Energy R&D,” 2/7, <http://www.cato.org/pubs/pas/pa424.pdf>

The fundamental problem is that selfinterest incentives within government are to add value to government but not to add economic value to taxpayers. Program goals are more likely to be technical than economic, and program managers are technical optimists about their own programs. Economists Linda Cohen and Roger Noll, for instance, reviewed six large government commercialization programs and concluded that a systematic bias exists to continue programs long after their failure becomes imminent.17 According to Cohen and Noll, the Clinch River Breeder Reactor, the supersonic transport plane, and many synfuels survived long after they were unjustifiable. The “bottom line” in government programs is political and not economic. Cohen and Noll conclude: The overriding lesson from the case studies is that the goal of economic efficiency —to cure market failures in privately sponsored commercial innovation— is so severely constrained by political forces that an effective, coherent national commercialization R&D program has never been put in place. The internal incentives within government organizations, the absence of a financial bottom line, and the difficulty of measuring output work together to produce inefficiencies in government.18¶ An example of the incentive within government to meet the interest of government rather than the public can be found in several federal programs advertised as global warming mitigation initiatives. Federal agencies that have internal incentives to protect their existing programs now rationalize those programs as providing climate change benefits. For instance, the Energy Star program of the U.S. Environmental Protection Agency seeks to obtain voluntary agreement from suppliers of personal computers to reduce energy requirements. In exchange for participating, the computer manufacturers put an energy star label on their product. Unfortunately, the relationship between energy use by computers and global warming is dubious at best.19 An honest climate change program would focus on carbon emissions and other greenhouse gas emissions rather than on energy efficiency.20 However, once the program is established, the “internal” incentives are to protect it and, in this case, to argue that it reduces the threat of global warming.¶ Another example of this dynamic at work is the incentive facing program managers in the public sector to fund research projects that will advance their careers. While it’s always possible to fund programs on the basis of their potential to contribute to scientific progress, regardless of their policy implications, supporting research designed to buttress an administration’s policy position is a better career move than presenting scientific evidence that conflicts with an existing policy position. Program managers in the Clinton administration were motivated to fund research likely to conclude that global warming is an imminent threat.21 Researchers, attempting to secure funding from the DOE or the Environmental Protection Agency, are more likely to obtain government funding if their research record and proposal supports the government view rather than the skeptics’ view.

#### Government auspices delay adoption because they make poor development choices

**Apt et al, 07** – executive director of the Electricity Industry Center at Carnegie Mellon University’s Tepper School of Business and the Department of Engineering and Public Policy, where he is a Distinguished Service Professor (Jay, “Promoting Low-Carbon Electricity Production,” Issues in Science and Technology, Spring, <http://www.issues.org/23.3/apt.html>

Conversely, if the government concentrates on supporting large and lengthy demonstration projects, this might delay commercial adoption of new technology by a decade or more. For example, the Department of Energy’s (DOE’s) Future-Gen project, which will construct an IGCC coal-fired plant with CO2 capture and sequestration, may be far less effective in inducing rapid adoption and technological progress than loan guarantees that encourage development of similar technology under private control. Like similar projects in the past, FutureGen’s effectiveness is likely to be blunted because the project in all probability will incorporate too many new (government-driven) technologies that, in combination with a lack of a champion who has the financial commitment to push the project to success, will make CO2 capture look more risky and costly than it will be under commercial development.

### Ignition

#### Can’t work

Jeff Hect (writer for the New Scientist) October 2, 2012 “World's largest laser misses nuclear fusion deadline “ http://www.newscientist.com/article/dn22325-worlds-largest-laser-misses-nuclear-fusion-deadline.html

Bad news for star power. The world's largest laser has missed a deadline that was key to its goal of producing safe, clean energy via nuclear fusion, the same process that powers the sun. The 192-beam laser forms the heart of the US National Ignition Facility at Lawrence Livermore National Laboratory in California, the world's leading laboratory for laser fusion research. But the lab has still not succeeded in creating a nuclear fusion reaction that makes more energy than it consumes, a milestone known as ignition. The US Congress, which funds NIF, had said the lab must do so by 30 September. In nuclear fusion, hydrogen nuclei are squeezed together to form helium nuclei, releasing huge amounts of energy. The hope is that fusion might one day replace uranium-based fission reactors as a cleaner source of nuclear power, but no controlled fusion reaction on Earth has ever hit the ignition point. Magnetic confinement fusion – using magnetic fields to confine a plasma at the pressures needed to achieve fusion – is generally considered the most advanced technique. That is what is used in the experimental Joint European Torus (JET) in Culham, UK, and the test reactor ITER, under construction in Cadarache, France. Pulsed implosion By contrast, NIF creates fusion reactions by imploding tiny balls of frozen hydrogen using pulses from its giant laser. The resulting pressure squeezes the hydrogen atoms for a few billionths of second and they fuse to form helium, releasing energy. NIF's push to meet the congressional deadline represented an ambitious attempt to pip magnetic confinement fusion to the post, but that looks unlikely now. Though computer models predicted that NIF was on track to create fusion reactions that produce more energy than they consume, this has turned out not to be case. The key problem seems to be achieving the required pressure of 300 gigabars (300 billion atmospheres). "We've reached 150 to 200 gigabars in implosions, but that's still off by a factor of 2-ish," Ed Moses, Lawrence Livermore's principal associate director for NIF and photon sciences, told New Scientist. Achieving the required pressure requires four things: an implosion velocity of 370 kilometres per second, creating a perfectly spherical hot spot at the centre of the imploded hydrogen pellets, mixing the plasma properly once it has formed, and very even compression. "We can do all of these things. The trouble is that we can't do them all at once," says Moses. "Like squeezing on a balloon, something might pop out.

#### Spinoffs take decades

**Rothwell, ’97** (Jed Rothwell, Infinite Energy, March-June 1997, “Cold Fusion and the Future,” <http://www.infinite-energy.com/iemagazine/issue1314/future.html>, Iss. 13-14)//CC

Cold fusion spin-off like indoor farming, desalination, and aerospace engines will take decades to develop. They will require massive investment, new factories, and years of research. Cold fusion itself will take time to perfect, but the spin-offs will take longer because they are more complex, and because large scale research on them will not begin until cold fusion is commercialized. Indoor farming with robots might take 30 to 60 years to develop. It is cost effective for some crops already: flowers in the Netherlands, tomatoes in Tokyo, aquaculture in Boston. But it will be a long time, if ever, before we grow wheat more cheaply indoors than on the Great Plains. The change to automated indoor farming will occur gradually, giving displaced farm workers time to find new jobs. The energy production industries ­ oil, gas, coal, and the electric power companies ­ are another matter. The potential for chaotic disruption here is very great, because the transition will be swift and it will be in one direction only. All jobs will be lost, none will be created.

#### NIF not key

**HGFRC, ‘1** (Institutes of the HGF Research Collaboration on Nuclear Fusion, Hearing on Nuclear Fusion before the Bundestag Committee for Education, Research, and Technology Assessment, 28 March 2001, http://fire.pppl.gov/eu\_bundestag\_english.pdf)//CC

Moreover, it is to be doubted that the presentation of long spin-off lists can be regarded as a justification for high future expenditures. Such lists have been drawn up in many areas of research, among others, in elementary particle physics (CERN), in space research (ESA, NASA) and also in the field of fusion research (JET, DOE Office for Fusion Research). A justification on the basis of expected spin-offs, however, is not possible since it is difficult to quantify the coming economic benefit. It would also have to be analysed what benefit would have been achieved if this money had been spent otherwise. On the other hand, it may be assumed, however, that the expenditure of similar sums in different high-technology areas produces similar levels of spin-offs. The fact that fusion research requires very complex, specifically developed instruments in various technological areas makes it so to speak destined for the generation of spin-off products.

#### Other projects solve

**Morrison, ’10** (Chris Morrison, CBS Money Watch, 1 February 2010, “Ten Serious Nuclear Fusion Projects Making Progress Around the World,” <http://www.cbsnews.com/8301-505123_162-34242897/ten-serious-nuclear-fusion-projects-making-progress-around-the-world/)//CC>

Besides the NIF, there are fusion projects going on around the world. All have two things in common: they're still at an experimental stage, and they've all been derided by critics at one point or another. But by looking at the pedigree, breakthroughs and financial support of projects, I've come up with a set of TKTK projects that, like the NIF, could someday give the world a cheap new energy source. I've tried to roughly rank them by their apparent prospects. By necessity the descriptions are pretty short, but you can Google any for more; also, look up the Lawson criterion, which sets the requirements for the sort of self-powered fusion reactions that would be required for any of the below projects to be successful. Here they are: The National Ignition Facility (USA) -- With its initial proof of the viability of using lasers to create fusion, the NIF has become the world's most watched fusion project. The ful name of the technology is laser-based inertial confinement fusion; the basic concept is firing 192 separate lasers to rapidly compress a tiny fuel pellet, which will (hopefully)undergo fusion at its core. Experiments around the idea began in the late 1970s, and following a series of cost overruns, the $3.5 billion NIF opened last year. ITER and DEMO (France) -- The International Thermonuclear Experimental Reactor is planned for France, but ultimately funded by seven countries, if you count the European Union as a single member. Building on the work of numerous other projects, like the Joint European Torus, China's EAST and South Korea's KSTAR, it would be proper to call ITER the grandfather of fusion research -- though the facility won't actually be complete until 2018. ITER is based on a tokamak, a circular (toroidal) magnetic chamber that compresses atoms to achieve fusion. If ITER works out perfectly, construction could begin on DEMO, a Demonstration Power Plant intended to produce usable amounts of electricity. LDX (USA) -- The Levitating Dipole Experiment, also mentioned above, is MIT's attempt to create a new design for fusion reactors. While shaped like a tokamak, which uses external magnets, the LDX brings the magnetic field inside its chamber, allowing different interactions with the plasma inside, including an unexpected density from turbulence. And, as the name suggests, the chamber levitates. HiPER (Europe) -- The High Power Laser Energy Research facility is supposed to be something of an improvement on the NIF's design, using a "fast ignition" approach that shrinks the size and output of the lasers to save on energy costs. Needless to say, HiPER got a boost from the NIF's early success, but the initial design and construction work isn't planned to begin for another year or two. Z-IFE (USA) -- A device at Sandia National Laboratory called the Z machine has proven capable of reaching extremely high temperatures (in the billions of Kelvins) and causing fusion with X-rays. Sandia has already upgraded the Z machine once, and through a series of further upgrades plans to reach the Z-inertial fusion energy (ZIFE) power plant and work up to creating a fairly continuous stream of fusion energy. The trick, as with all of these projects, will be achieving a positive energy output. General Fusion (Canada) -- This is a Canadian startup working on something they call "acoustically driven magnetized target fusion". Much like the NIF's laser fusion, General Fusion plans to use many pressure points to cause fusion in a central pellet; but unlike NIF, the company's design uses phsyical rams that transmit shock waves to compress the material. It's funded with a few million dollars, versus the billions governments have put into projects like NIF and ITER, but General Fusion can at least claim a unique design, which it says is superior because of modern computer controls. Lawrenceville Plasma Physics (USA) -- Another private company, LPP is working with even less funding than General Fusion, for the moment. LPP, run by a researcher who started off with NASA grants, plans to use a "dense plasma focus" device that creates magnetic fields with electricity and uses them to focus matter into a plasmoid. While similar to ITER, one of its advantages would be a lack of external magnets (like the LDX); another, its much lower cost to prototype and smaller scale overall. FRX-L (USA) -- Under study at the Los Alamos National Laboratory and the Air Force Research Laboratory, the FRX-L uses magnetized target fusion, which is much like General Fusion's approach, above. Unlike General Fusion, the researchers using FRX-L aren't driven by the imperative of finding success within a few short years or being shut down. Wendelstein 7-X (Germany) -- Another pilot project intended only to evaluate the potential of fusion energy, the Wendelstein 7-X is, like ITER, based on a toroidal design. The 7-X will be a replacement for the previous 7-AS unit at Germany's Max Planck Institute when it's completed in 2015; the aim is for the unit to be able to operate for 30 minutes continuously, proving that fusion could be used in power plants. Sonofusion (USA) -- Also called bubble fusion, this technique can supposedly use sound waves to compress matter for fusion. It's also in the scientific doghouse, following a scandal in which the students of a researcher who initially claimed to have achieved sonofusion wrote a paper supporting his results. You can find a long technical paper on it here, and there's also a startup called Impulse Devices working on sonofusion.

#### 1. Colonization is impossible —

#### a) Tech and health barriers

**Egan and Kreso 11** (2011, Michael Egan and John Kreso, thesis paper submitted in fulfillment of a BS degree at WPI, advised by Professor Mayer Humi, Mathematical Sciences, Worcester Polytechnic Institute, “Expediting Factors in Developing a Successful Space Colony,” http://www.wpi.edu/Pubs/E-project/Available/E-project-041911-134845/unrestricted/IQP\_Final.pdf DH)

Currently, it is still not technologically feasible to colonize space. Although many countries and a few private corporations have the capability to travel to space, the high levels of technology needed to sustain human life in space still do not exist. A more efficient method of propulsion is needed to make space missions more economically feasible. The high cost of launching objects into space, which would be undoubtedly necessary to start a colony, is still a deterrent for large missions. Until more frequent and cheaper ways of sending people and goods into LEO exists, the planning stages of creating the first space colony will not even be possible. Also, protecting the human body from the harsh conditions of space becomes a much greater problem when the time spend in space is years instead of months. Bioengineering is a key factor that can combat the negative effects on humans. This can be done either by adapting humans to be more resistant to these effects, or by creating better protective suits and ways to ensure the prolonged health of humans. Even if the propulsion technology and infrastructure were available in space to start a colony, without better ways to guarantee the safety of humans the first colonies still would not be able to sustain human life.

#### No asteroids impact

**Bennett, 10** — professor of political economy and public policy at George Mason University and Director of The John M. Olin Institute for Employment Practice and Policy (James, “The Chicken Littles of Big Science; or, Here Come the Killer Asteroids!”, THE DOOMSDAY LOBBY, pg. 139-185, 2010, DOI: 10.1007/978-1-4419-6685-8\_6)

It should be noted that the Alvarez et al. hypothesis was not universally accepted. As Peter M. Sheehan and Dale A. Russell wrote in their paper “Faunal Change Following the Cretaceous–Tertiary Impact: Using Paleontological Data to Assess the Hazards of Impacts,” published in Hazards Due to Comets & Asteroids (1994), edited by Tom Gehrels, “many paleontologists resist accepting a cause and effect relationship” between the iridum evidence, the Chicxulub crater, and the mass extinction of 65 million years ago.15 For instance, Dennis V. Kent of the Lamont–Doherty Geological Observatory of Columbia University, writing in Science, disputed that a high concentration of iridium is necessarily “associated with an extraordinary extraterrestrial event” and that, moreover, “**a large asteroid… is not likely to have** had the **dire consequences to life** on the earth that they propose.”16 Briefly, Kent argues that the Alvarez team mistakenly chose the 1883 Krakatoa eruption as the standard from it extrapolated the effects of stratospheric material upon sunlight. Yet Krakatoa was too small a volcanic eruption from which to draw any such conclusions; better, says Kent, is the Toba caldera in Sumatra, remnant of an enormous eruption 75,000 years ago. (A caldera is the imprint left upon the earth from a volcanic eruption.) The volume of the Toba caldera is 400 times as great as that of Krakatoa – considerably closer to the effect that an asteroid impact might have. Yet the sunlight “attenuation factor [for Toba] is not nearly as large as the one postulated by Alvarez et al. for the asteroid impact.” Indeed, the Toba eruption is not associated with any mass extinctions, leading Kent to believe that “the cause of the massive extinctions is not closely related to a drastic reduction in sunlight alone.”17 Reporting in Science, Richard A. Kerr wrote that “Many geologists, paleontologists, astronomers, and statisticians… find the geological evidence merely suggestive or even nonexistent and the supposed underlying mechanisms improbable at best.” Even the iridium anomalies have been challenged: Bruce Corliss of the Woods Hole Oceanographic Institute argues that the major **extinctions associated with the** K–T **event were not immediate and catastrophic** but “gradual and apparently linked to progressive climate change.”18 Others argue that a massive volcanic event predating the Alvarezian killer asteroid created an overwhelming greenhouse effect and set the dinosaurs up for the knockout punch. A considerable number of scientists believe that gradually changing sea levels were the primary cause of the K–T Extinction. If either of these hypotheses is true – and a substantial number of geologists hold these positions — then the “killer asteroid” is getting credit that it does not deserve. Even if the K–T Extinction was the work of a rock from space, the Alvarez team credits a “probable interval of 100 million years between collisions with 10-km-diameter objects.”19 The next rendezvous with annihilation won’t be overdue for about 40 million years. We have time.

**No peak energy**

**Hossein-zadeh 8** – Professor of Economics, Drake (Ismael, 6/25, Are they really oil wars?, http://www.atimes.com/atimes/Global\_Economy/JF25Dj05.html)

Peak Oil theory is based on a number of assumptions and omissions that make it less than reliable. To begin with, it discounts or disregards the fact that energy-saving technologies have drastically improved (and will continue to further improve) the efficiency of oil consumption. Evidence shows that, for example, "over a period of five years (1994-99), US GDP expanded over 20% while oil usage rose by only 9%. Before the 1973 oil shock, the ratio was about one to one." [4]

Second, Peak Oil theory pays scant attention to the drastically enabling new technologies that have made (and will continue to make) possible discovery and extraction of oil reserves that were inaccessible only a short time ago. One of the results of the more efficient means of research and development has been a far higher success rate in finding new oil fields. The success rate has risen in 20 years from less than 70% to over 80%. Computers have helped to reduce the number of dry holes. Horizontal drilling has boosted extraction. Another important development has been deep-water offshore drilling, which the new technologies now permit. Good examples are the North Sea, the Gulf of Mexico, and more recently, the promising offshore oil fields of West Africa. [5]

Third, Peak Oil theory also pays short shrift to what is sometimes called non-conventional oil. These include Canada's giant reserves of extra-heavy bitumen that can be processed to produce conventional oil. Although this was originally considered cost inefficient, experts working in this area now claim that they have brought down the cost from over US$20 a barrel to $8 per barrel. Similar developments are taking place in Venezuela. It is thanks to developments like these that since 1970, world oil reserves have more than doubled, despite the extraction of hundreds of millions of barrels. [6]

Fourth, Peak Oil thesis pays insufficient attention to energy sources other than oil. These include solar, wind, non-food bio-fuel, and nuclear energies. They also include natural gas. Gas is now about 25% of energy demand worldwide. It is estimated that by 2050 it will be the main source of energy in the world. A number of American, European, and Japanese firms are investing heavily in developing fuel cells for cars and other vehicles that would significantly reduce gasoline consumption. [7]

Fifth, proponents of Peak Oil tend to exaggerate the impact of the increased oil demand coming from China and India on both the amount and the price of oil in global markets. The alleged disparity between supply and demand is said to be due to the rapidly growing demand coming from China and India. But that rapid growth in demand is largely offset by a number of counterbalancing factors. These include slower growth in US demand due to its slower economic growth, efficient energy utilization in industrially advanced countries, and increases in oil production by members of the Organization of Petroleum Exporting Countries, Russia, and others.

Finally, and perhaps more importantly, claims of "peaked and dwindling" oil are refuted by the available facts and figures on global oil supply. Statistical evidence shows that there is absolutely no supply-demand imbalance in global oil markets. Contrary to the claims of the proponents of Peak Oil and champions of war and militarism, the current oil price shocks are a direct consequence of the destabilizing wars and geopolitical insecurity in the Middle East, not oil shortages. These include not only the wars in Iraq and Afghanistan, but also the threat of a looming war against Iran. The record of soaring oil prices shows that anytime there is a renewed US military threat against Iran, fuel prices move up several notches.

#### Resources are infinite–we’ll never run out

**Geddes 4** (Marc, Writer and Libertarian Analyst, “The Monster Non-Socialist Faq”, February 12, http://solohq.com/War/MonsterFAQ.shtml)

Answer: A significant disruption to supplies of critical resources can cause temporary problems, but in a free market, if resources start to become scarce, prices rise, leading to a search of substitutes and improved conservation efforts. The pool of resources is not fixed, because human ingenuity can find substitutes or new sources of resources. Supplies of most raw materials have been increasing throughout the 20th century, and the cost has been falling (See the entry on Natural resources). For instance, between 1950 and 1970, bauxite (aluminium source) reserves increased by 279 per cent, copper by 179 per cent, chromite (chromium source) by 675 per cent, and tin reserves by 10 per cent. In 1973 experts predicted oil reserves stood at around 700 billion barrels, yet by 1988 total oil reserves had actually increased to 900 billion barrels. Production of certain kinds of resources such as fossil fuels may finally be beginning to peak but there are renewable energy sources in development which can serve as substitutes. Simplistic thermodynamic analysis of energy production is misleading, because it's not the quantities of energy used or produced that determine economic value, but the utility, or usefulness if that energy to humans. If energy is being used more efficiently you don't need as much of it, and some forms of energy are more valuable than others- for instance kinetic energy in the form of wind power is less valuable than the same quantity of latent energy in the form of oil. Solar power is a virtually inexhaustible supply of new energy for stationary sources and the hydrogen fuel cell can serve for transportation in place of fossil fuels. Developing these technologies costs money, so to avoid resource shortages a good economy is essential. Libertarian capitalism is the system which generates wealth the fastest.

#### Even massive economic decline has zero chance of war

Robert **Jervis 11**, Professor in the Department of Political Science and School of International and Public Affairs at Columbia University, December 2011, “Force in Our Times,” Survival, Vol. 25, No. 4, p. 403-425

Even if war is still seen as evil, the security community could be dissolved if severe conflicts of interest were to arise. Could the more peaceful world generate new interests that would bring the members of the community into sharp disputes? 45 A zero-sum sense of status would be one example, perhaps linked to a steep rise in nationalism. More likely would be a worsening of the current **economic difficulties**, which could itself produce greater nationalism, undermine democracy, and bring back old-fashioned beggar-thy-neighbor economic policies. While these dangers are real, it is hard to believe that the conflicts could be great enough to lead the members of the community to contemplate fighting each other. It is not so much that economic interdependence has proceeded to the point where it could not be reversed – states that were more internally interdependent than anything seen internationally have fought bloody civil wars. Rather it is that even if the more extreme versions of free trade and economic liberalism become discredited, it is hard to see how without building on a pre-existing high level of political conflict leaders and mass opinion would come to believe that their countries could prosper by impoverishing or even attacking others. Is it possible that problems will not only become severe, but that people will entertain the thought that they have to be solved by war? While a pessimist could note that this argument does not appear as outlandish as it did before the financial crisis, an optimist could reply (correctly, in my view) that the very fact that we have seen such a sharp economic down-turn without anyone suggesting that force of arms is the solution shows that even if bad times bring about greater economic conflict, it will not make war thinkable.

### Advantage Two

#### No escalation and no war

**Weston 09** – Major, attending Joint Military Attaché School en route to serve as the assistant air attaché to the Republic of the Philippines (Scott A, Spring 2009, "Examining Space Warfare: Scenarios, Risks, and US Policy Implications," Proquest, RG)

In the first scenario, the United States deploys to defend Taiwan against China’s attempt to subdue the island forcibly. As in the RAND study, China would likely refrain from attacking US space assets to preserve its own space ISR capability, which it needs to monitor the US buildup. The United States would also delay full counterspace operations until fully deployed in order to prepare for retaliation with assets in place instead of in transit, where space disruption would cause much more confusion. With the United States almost fully deployed, China would do well to utilize any counterspace weapons it possesses before the United States targets them. Given its limited ASAT capability, China would likely target US military communication and reconnaissance satellites, avoiding permanent damage to dual-use commercial satellites to preserve its global reputation and protect its own third-party commercial space contracts. The Chinese would use kinetic attacks and any rapidly deployed ASAT lasers against low-altitude satellites, such as those performing reconnaissance, while likely attacking high-altitude communication satellites by jamming or feeding them malicious code. In addition to hitting space assets, China would probably deploy high-powered GPS and other signal jamming throughout the theater to degrade US bombing accuracy and complicate navigation. US doctrine, which places priority on air and space superiority, suggests that the first US attack would target China’s ground-based counterspace capability, using the full range of joint-attack forces and munitions. This first wave of ground attacks would also combine with counterspace offensive operations of a nondestructive nature, as highlighted in the Schriever war games, to temporarily blind Chinese ISR satellites and jam communication and signal-collection satellites. A few political caveats attach to this doctrine-directed target list, however. China’s launch facilities are far inland, thus raising the possibility that it would consider strikes in these areas a significant escalation, just as the United States would consider Chinese attacks on US launch facilities at Cape Canaveral, Florida, and Vandenberg AFB, California, provocative. The United States would also have to avoid targeting ground-based missile-launch-detection capabilities, which China might interpret as preparation for a nuclear first strike. As mentioned in the RAND war-game scenario, China would be far less affected than the United States by the loss of most space assets at this point because its air-breathing ISR assets could cover the immediate theater and short-range ground communications that do not rely upon satellites.37 Conversely, once US forces have deployed, they would rely heavily upon space assets. In a limited military engagement such as this, it is unlikely that the United States would attempt to facilitate ISR flights by establishing air superiority over all of China. US forces would thus remain highly reliant upon satellites for ISR over mainland China and for communication with the homeland and between deployed units. The RAND study also pointed out that China would likely contract commercial third-party space assets to provide needed capabilities, complicating repercussions from US attacks. All told, counterspace operations would probably prove as discriminate as possible to prevent strategic escalation. Both sides would hesitate to utilize kinetic-kill ASATs against anything but very low-altitude satellites for fear of incurring international condemnation and increasing debris hazards for their own resources.38 In all likelihood, the United States would not use its kinetic ASAT capability, preferring to utilize its limited number of sea-based Standard Missile 3s for ABM defense of forward-deployed forces. Thus, the number of satellites destroyed or permanently disabled would be very low. As limited as this scenario appears, it bears out realistic actions taken under current policy and doctrine, given the resources available to each side. In this case, it is difficult to see how even one of our most capable space adversaries would have either the capability or the motivation to attempt a surprise attack on US space assets that would rise to the level of a space Pearl Harbor. It is also difficult to understand how the cost of deploying hundreds or even thousands of US weapon satellites to ensure space dominance would greatly affect the outcome of this scenario. Even a deployed space-based missile-defense shield probably would not encourage the United States to intentionally escalate a limited regional conflict with another nuclear power to a full nuclear exchange if there were any risk of nuclear warheads reaching US soil.

#### NIF fails - can’t ignite

Glanz, 97 - Ph.D. in astrophysical sciences at Princeton, Pulitzer-winning journalist

(James, “A harsh light falls on NIF,” *Science* Vol. 277 Issue 5324, p304, Academic Search Premier)

Even some supporters of the facility, however, rate its chances of ignition at only a little better than 50-50. And Ripin, who advises Livermore on ways to improve the odds, says **"It is going to be very close." Other physicists put the chances at less than 10%.** Adding to the doubts are an array of challenges: fabricating cryogenic fuel capsules with microscopic smoothness to ensure a symmetric implosion, producing almost an acre of precision optics that can withstand terrific light intensities, and suppressing instabilities in the ionized gas, or plasma, inside and around the fuel pellet. Researchers also disagree about the implications of a set of underground bomb tests in the 1980s, code-named Centurion/Halite, some of which checked whether a capsule could ignite under conditions roughly equivalent to those NIF is supposed to create.

#### NIF won’t work --- means they can’t access their perception arguments because it won’t be perceived as a credible deterrent

Morrison, Engineering News, 2/27/09 [Liam, Electricity from nuclear fusion still science fiction, <http://www.engineeringnews.co.za/article/electricity-from-nuclear-fusion-still-science-fiction-2009-02-27>]

The use of laser technology to achieve nuclear fusion may prove to be a purely academic exercise unless a method is found to convert the substantial amount of energy that is released into a usable form, reports North-West University School of Mechanical Engineering’s Peet van Schalkwyk. His comments come on the back of the US National Ignition Facility’s (NIF’s) plans to replicate the extreme conditions needed to achieve not only fusion ignition and burn, but also energy gain, which are two key milestones in the scientific pursuit of fusion energy as a source of electricity. The NIF, the world’s largest laser, is due to be completed later this year at Lawrence Livermore National Laboratory, in California, and is operated by Lawrence Livermore National Security for the US Department of Energy’s National Nuclear Security Administration. The NIF’s 192 intense lasers will be used to initiate a nuclear fusion reaction. If successful, the NIF will be the first facility to demonstrate fusion ignition and energy gain in a laboratory setting, reports the February 2009 edition of Popular Mechanics. “The NIF’s attempt to initiate a fusion reaction with lasers will undoubtedly be a success. What the group is trying to do is not impossible; however, its results will remain purely academic until we have the knowledge to harvest and convert that energy into electricity in an economical way. And **I have doubts as to whether this will be possible any time soon**,” says Van Schalkwyk. Nuclear fusion takes place when the nuclei of atoms of elements with low atomic numbers are fused together under tremendous pressure and temperature. This is the same fusion energy process that makes the stars shine and provides the life-giving energy of the sun. Nuclear fusion produces far greater amounts of energy than nuclear fission, which is the splitting of atoms. However, a method has not yet been identified for harvesting the immense energy from such a fusion reaction and converting it into electricity. In the 1950s, scientists believed that human-kind was only a few years from developing a method of harvesting the energy released by nuclear fusion; however, “in nearly 60 years we have not come any closer to achieving that goal”, says Van Schalkwyk.

#### ICBMs solve

**Turner ‘3** (Stansfield, Retired US Navy Admiral and former Dir. CIA and Commander-in-Chief of NATO’s Southern Flank, Naval War College Review, “Is the U.S. Navy being marginalized?” 56:3, Proquest)

Strategic Deterrence. At the peak we had forty-one strategic ballistic missile submarines (SSBNs). We are now approaching eighteen and probably going to ten. In part that is true because of the demise of the Soviet Union. It is also in part because we are beginning to recognize that the prime virtue of the SSBN, its invulnerability, has never been as important as many of us who have written on this subject have contended. This change of mind results from a realization that the threat of even only a few retaliatory nuclear detonations is sufficient to deter anyone. That is because any would-be nuclear aggressor must assume the worst, which is that we would retaliate by attacking his cities. Would the Russians or even the Chinese, let alone ourselves, be willing to lose ten, or five, or even two major cities in the name of initiating and "winning" a nuclear war? Thus, even if we had only the more vulnerable intercontinental ballistic missiles (ICBMs) and no SSBNs at all in our nuclear arsenal, we would still have an adequate strategic deterrent. That would be the case even were some other nuclear power to acquire many more nuclear weapons than we. No such power could assume that any preemptive first strike it undertook would be 100 percent successful-that is, that there would be no nuclear retaliation. There would always be errors of targeting, missiles that failed entirely, missiles that were inaccurate, and human errors in execution. It all adds up to what Clausewitz described as "friction" in war. So a U.S. strategic nuclear deterrent with only ICBMs should suffice. Thus, the Navy's role in this area is going to be looked at more critically, and this mission of the Navy will be seen as less critical to the country than it once was.

#### Nuke threat not credible now—crushes deterrence.

**Gerson 9** – senior fellow at CFR, was at Heritage Foundation (9/29, Michael, "Rethinking US Nuclear Posture" http://carnegieendowment.org/files/0929\_transcript\_nuclear\_posture.pdf)

On the one hand, I think you can make a case that U.S. threats, whether they’re implicit or explicit – and really what we’re talking about here is the ambiguous threat – is simply not credible. It’s not credible for a variety of reasons. I mean, one is the nuclear taboo, this moral and political aversion to using nuclear weapons that has emerged in the long absence of nuclear use and conflict. In the nuclear arena, the United States is largely seen as cool-headed, risk-averse and sensitive to casualties and collateral damage. The United States does not seem to be able to benefit from the sort of rationality of irrationality type argument. The prospect that the United States would unilaterally shatter the almost seven-decade record of non-use in conflict I think contributes to the belief that the United States would in fact not use nuclear weapons.

Another argument is I think that one could make the case that an unintended consequence of the United States first use – the United States efforts to lead to the global non-proliferation regime is that it reduces the credibility of the United States to use nuclear weapons first. If the United States spends all of this time working on the efforts to prevent others from getting nuclear weapons, it seems – it makes it less credible that the United States would risk shattering that and throwing it all away by using nuclear weapons first.

And finally, in the Gulf War, despite the threats of calculated ambiguity and the ambiguous threat of nuclear weapons, which some believe deterred Saddam, Bush, Scowcroft, Powell, and Baker, all said after the conflict that they had actually never intended on using nuclear weapons. And such public admission I think reduces the credibility of those threats.

## 2nc

### restrictions cards

#### Restrictions go beyond inducements and disadvantages—formal, legal interpretation is key to avoid effects topicality and mixing burdens

**Groves 97**

Sourcebook on Intellectual Property Law

Dr Peter J Groves, LLB, MA, PhD, MITMA, Solicitor

Then I come to the word 'restrict', A person though not prohibited is restricted from using something if he is permitted to use it to a certain extent or subject to certain conditions but otherwise obliged not to use it, but I do not think that a person is properly said to be restricted from using something by a condition the effect of which is to offer him some inducement not to use it, or in some other way to influence his choice. To my mind, the more natural meaning here is restriction of the licensee's right to use the article and I am fortified in that opinion by two considerations. If I am right in thinking that 'require' and 'prohibit' refer to legal obligations to buy or not to use, I see nothing to suggest that 'restrict' is used in quite a different sense which has nothing to do with legal obligation but which relates to financial disadvantage. And, second, to say that the effect will be to restrict seems to me much more appropriate if restriction refers to restriction of the licensee's right to use than it would be if restriction refers to an inducement not to use. The legality of the condition has to be determined at the time when the licence is granted and if the terms of the conditions are such as to restrict the licensee's right to use an article in certain circumstances then it can properly be said that its effect will be to restrict him from using it. But if, as in the present case, all that can be said is that the effect of the condition in some circumstances will be to offer a financial advantage, which may be considerable or may be small, if the licensee uses the licensor's goods, I do not see how it can be said that its effect will be to restrict the licensee from using other goods. The licensee may be influenced by this financial advantage or he may, perhaps for good reason, choose to disregard it; it is impossible to say in advance what the effect will be.

#### Anell defines ‘restriction on production’—they don’t—key to predictability

**Haneman**, justice – Superior Court of New Jersey, Appellate Division, 12/4/**’59**

(J.A.D., “RUSSELL S. BERTRAND, ET AL., PLAINTIFFS-RESPONDENTS, v. DONALD T. JONES, ET AL., DEFENDANTS-APPELLANTS,” 58 N.J. Super. 273; 156 A.2d 161; 1959 N.J. Super. LEXIS 569)

HN4 In ascertaining the meaning of the word "restrictions" as here employed, it must be considered in context with the entire clause in which it appears. It is to be noted that the exception concerns restrictions "which have been complied with." Plainly, this connotes a representation of compliance by the vendor with any restrictions upon the permitted uses of the subject property. The conclusion that "restrictions" refer solely to a limitation of the manner in which the vendor may [\*\*\*14] use his own lands is strengthened by the further provision found in said clause that the conveyance is "subject to the effect, [\*\*167] if any, of municipal zoning laws." Municipal zoning laws affect the use of property.

HN5 A familiar maxim to aid in the construction of contracts is noscitur a sociis. Simply stated, this means that a word **is known from its associates**. Words of general and specific import take color from each other when associated together, and thus the word of general significance is modified by its associates of restricted sense. 3 Corbin on Contracts, § 552, p. 110; cf. Ford Motor Co. v. New Jersey Department of Labor and Industry, 5 N.J. 494 (1950). The [\*284] word "restrictions," therefore, should be construed as being used in the same limited fashion as "zoning."

#### Including regulations is a limits disaster

Doub 76

Energy Regulation: A Quagmire for Energy Policy

Annual Review of Energy

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FERS began with the recognition that federal energy policy must result from concerted efforts in all areas dealing with energy, not the least of which was the manner in which energy is regulated by the federal government. Energy selfsufficiency is improbable, if not impossible, without sensible regulatory processes, and effective regulation is necessary for public confidence. Thus, the President directed that "a comprehensive study be undertaken, in full consultation with Congress, to determine the best way to organize all energy-related regulatory activities of the government." An interagency task force was formed to study this question. With 19 different federal departments and agencies contributing, the task force spent seven months deciphering the present organizational makeup of the federal energy regulatory system, studying the need for organizational improvement, and evaluating alternatives. More than 40 agencies were found to be involved with making regulatory decisions on energy. Although only a few deal exclusively with energy, most of the 40 could significantly affect the availability and/or cost of energy. For example, in the field of gas transmission, there are five federal agencies that must act on siting and land-use issues, seven on emission and effluent issues, five on public safety issues, and one on worker health and safety issues-all before an onshore gas pipeline can be built. The complexity of energy regulation is also illustrated by the case of Standard Oil Company (Indiana), which reportedly must file about 1000 reports a year with 35 different federal agencies. Unfortunately, this example is the rule rather than the exception.

#### Limits outweigh:

#### 1. Participation

**Rowland 84** (Robert C., Baylor U., “Topic Selection in Debate”, American Forensics in Perspective. Ed. Parson, p. 53-4)

The first major problem identified by the work group as relating to topic selection is the decline in participation in the National Debate Tournament (NDT) policy debate. As Boman notes: There is a growing dissatisfaction with academic debate that utilizes a policy proposition. Programs which are oriented toward debating the national policy debate proposition, so-called “NDT” programs, are diminishing in scope and size.4 This decline in policy debate is tied, many in the work group believe, to excessively broad topics. The most obvious characteristic of some recent policy debate topics is extreme breath. A resolution calling for regulation of land use literally and figuratively covers a lot of ground. Naitonal debate topics have not always been so broad. Before the late 1960s the topic often specified a particular policy change.5 The move from narrow to broad topics has had, according to some, the effect of limiting the number of students who participate in policy debate. First, the breadth of the topics has all but destroyed novice debate. Paul Gaske argues that because the stock issues of policy debate are clearly defined, it is superior to value debate as a means of introducing students to the debate process.6 Despite this advantage of policy debate, Gaske belives that NDT debate is not the best vehicle for teaching beginners. The problem is that broad policy topics terrify novice debaters, especially those who lack high school debate experience. They are unable to cope with the breadth of the topic and experience “negophobia,”7 the fear of debating negative. As a consequence, the educational advantages associated with teaching novices through policy debate are lost: “Yet all of these benefits fly out the window as rookies in their formative stage quickly experience humiliation at being caugh without evidence or substantive awareness of the issues that confront them at a tournament.”8 The ultimate result is that fewer novices participate in NDT, thus lessening the educational value of the activity and limiting the number of debaters or eventually participate in more advanced divisions of policy debate. In addition to noting the effect on novices, participants argued that broad topics also discourage experienced debaters from continued participation in policy debate. Here, the claim is that it takes so much times and effort to be competitive on a broad topic that students who are concerned with doing more than just debate are forced out of the activity.9 Gaske notes, that “broad topics discourage participation because of insufficient time to do requisite research.”10 The final effect may be that **entire programs** either **cease functioning** or shift to value debate as a way to avoid unreasonable research burdens. Boman supports this point: “It is this expanding necessity of evidence, and thereby research, which has created a competitive imbalance between institutions that participate in academic debate.”11 In this view, it is the competitive imbalance resulting from the use of broad topics that has led some small schools to cancel their programs.

#### 2. Innovation

Intrator, 10 [David President of The Creative Organization, October 21, “Thinking Inside the Box,” http://www.trainingmag.com/article/thinking-inside-box

One of the most pernicious myths about creativity, one that seriously inhibits creative thinking and innovation, is the belief that one needs to “think outside the box.” As someone who has worked for decades as a professional creative, nothing could be further from the truth. This a is view shared by the vast majority of creatives, expressed famously by the modernist designer Charles Eames when he wrote, “Design depends largely upon constraints.” The myth of thinking outside the box stems from a fundamental misconception of what creativity is, and what it’s not. In the popular imagination, creativity is something weird and wacky. The creative process is magical, or divinely inspired. But, in fact, creativity is not about divine inspiration or magic. It’s about problem-solving, and by definition a problem is a constraint, a limit, a box. One of the best illustrations of this is the work of photographers. They create by excluding the great mass what’s before them, choosing a small frame in which to work. Within that tiny frame, literally a box, they uncover relationships and establish priorities. What makes creative problem-solving uniquely challenging is that you, as the creator, are the one defining the problem. You’re the one choosing the frame. And you alone determine what’s an effective solution. This can be quite demanding, both intellectually and emotionally. Intellectually, you are required to establish limits, set priorities, and cull patterns and relationships from a great deal of material, much of it fragmentary. More often than not, this is the material you generated during brainstorming sessions. At the end of these sessions, you’re usually left with a big mess of ideas, half-ideas, vague notions, and the like. Now, chances are you’ve had a great time making your mess. You might have gone off-site, enjoyed a “brainstorming camp,” played a number of warm-up games. You feel artistic and empowered. But to be truly creative, you have to clean up your mess, organizing those fragments into something real, something useful, something that actually works. That’s the hard part. It takes a lot of energy, time, and willpower to make sense of the mess you’ve just generated. It also can be emotionally difficult. You’ll need to throw out many ideas you originally thought were great, ideas you’ve become attached to, because they simply don’t fit into the rules you’re creating as you build your box.

#### Conditions on monitoring or supervision are NOT restrictions

Jean Schiedler-Brown (Court of Appeals, Attorney at Law Offices of Jean Schiedler-Brown &

Associates) June 19 2012 Appellant Brief of Randall Kinchloe v. States Dept of Health, Washington, http://www.courts.wa.gov/content/Briefs/A01/686429%20Appellant%20Randall%20Kincheloe%27s.pdf

3. The ordinary definition of the term "restrictions" also does not include the reporting and monitoring or supervising terms and conditions that are included in the 2001 Stipulation. Black's Law Dictionary, 'fifth edition,(1979) defines "restriction" as; A limitation often imposed in a deed or lease respecting the use to which the property may be put. The term "restrict' is also cross referenced with the term "restrain." Restrain is defined as; To limit, confine, abridge, narrow down, restrict, obstruct, impede, hinder, stay, destroy. To prohibit from action; to put compulsion on; to restrict; to hold or press back. To keep in check; to hold back from acting, proceeding, or advancing, either by physical or moral force, or by interposing obstacle, to repress or suppress, to curb.

In contrast, the terms "supervise" and "supervisor" are defined as; To have general oversight over, to superintend or to inspect. See Supervisor. A surveyor or overseer. . . In a broad sense, one having authority over others, to superintend and direct. The term "supervisor" means an individual having authority, in the interest of the employer, to hire, transfer, suspend, layoff, recall, promote, discharge, assign, reward, or discipline other employees, or responsibility to direct them, or to adjust their grievances, or effectively to recommend such action, if in connection with the foregoing the exercise of such authority is not of a merely routine or clerical nature, but required the use of independent judgment. Comparing the above definitions, it is clear that the definition of "restriction" is very different from the definition of "supervision"-very few of the same words are used to explain or define the different terms. In his 2001 stipulation, Mr. Kincheloe essentially agreed to some supervision conditions, but he did not agree to restrict his license.

### r&d

#### R&D is not exclusively tied to production—it’s an indirect subsidy

**EIA**, Energy Information Administration, Office of Energy Markets and End Use, U.S. DOE, **1992** (“Federal Energy Subsidies: Direct and Indirect Interventions in Energy Markets,” <ftp://tonto.eia.doe.gov/service/emeu9202.pdf>)

Research and development. The budgetary cost of Government-funded research and development (R&D) is easy to measure. Determining the extent to which Government energy R&D is a subsidy is more problematic: often it takes the form of a direct payment to producers or consumers, **but the payment is not tied to** the **production** or consumption of energy in the present. If successful, Federal-applied R&D will affect future energy prices and costs, and so could be considered an **indirect** subsidy.

#### Limits and precision – research reactors are formally and technically distinct. There are HUNDREDS of types

World Nuclear Association 10

http://www.world-nuclear.org/info/inf61.html

The World Nuclear Association (WNA), formerly the Uranium Institute, is an international organization that promotes nuclear power and supports the many companies that comprise the global nuclear industry. Its members come from all parts of the nuclear fuel cycle, including uranium mining, uranium conversion, uranium enrichment, nuclear fuel fabrication, plant manufacture, transport, and the disposition of used nuclear fuel as well as electricity generation itself [1]. Together, WNA members are responsible for 95% of the world's nuclear power outside of the U.S. [2] as well as the vast majority of world uranium, conversion and enrichment production.[3] The WNA says it aims to fulfill a dual role for its members: Facilitating their interaction on technical, commercial and policy matters and promoting wider public understanding of nuclear technology. [4] Accredited to the United Nations, the WNA is an independent, non-profit organization, funded primarily by membership subscriptions

Many of the world's nuclear reactors are used for research and training, materials testing, or the production of radioisotopes for medicine and industry. They are basically neutron factories.

These are much smaller than power reactors or those propelling ships, and many are on university campuses. There are about 240 such reactors operating, in 56 countries. Some operate with high-enriched uranium fuel, and international efforts are underway to substitute low-enriched fuel. Some radioisotope production also uses high-enriched uranium as target material for neutrons, and this is being phased out in favour of low-enriched uranium. Research reactors comprise a wide range of civil and commercial nuclear reactors which are generally not used for power generation. The term is used here to include test reactors, which are more powerful than most. The primary purpose of research reactors is to provide a neutron source for research and other purposes. Their output (neutron beams) can have different characteristics depending on use. They are small relative to power reactors whose primary function is to produce heat to make electricity. They are essentially net energy users. Their power is designated in megawatts (or kilowatts) thermal (MWth or MWt), but here we will use simply MW (or kW). Most range up to 100 MW, compared with 3000 MW (i.e. 1000 MWe) for a typical power reactor. In fact the total power of the world's 283 research reactors is little over 3000 MW.Research reactors are simpler than power reactors and operate at lower temperatures. They need far less fuel, and far less fission products build up as the fuel is used. On the other hand, their fuel requires more highly enriched uranium, typically up to 20% U-235, although some older ones use 93% U-235. They also have a very high power density in the core, which requires special design features. Like power reactors, the core needs cooling, though only the higher-powered test reactors need forced cooling. Usually a moderator is required to slow down the neutrons and enhance fission. As neutron production is their main function, most research reactors also need a reflector to reduce neutron loss from the core.As of October 2011 the IAEA database showed that there were 241 operational research reactors (92 of them in developing countries), 3 under construction, 202 shut down (plus 13 temporary) and 211 decommissioned.Types of research reactors There is a much widerarray of designs in use for research reactors than for power reactors, where 80% of the world's plants are of just two similar types. They also have different operating modes, producing energy which may be steady or pulsed.A common design (67 units) is the pool type reactor, where the core is a cluster of fuel elements sitting in a large pool of water. Among the fuel elements are control rods and empty channels for experimental materials. Each element comprises several (e.g. 18) curved aluminium-clad fuel plates in a vertical box. The water both moderates and cools the reactor, and graphite or beryllium is generally used for the reflector, although other materials may also be used. Apertures to access the neutron beams are set in the wall of the pool. Tank type research reactors (32 units) are similar, except that cooling is more active.The TRIGA reactor is another common design (40 units). The core consists of 60-100 cylindrical fuel elements about 36 mm diameter with aluminium cladding enclosing a mixture of uranium fuel and zirconium hydride (as moderator). It sits in a pool of water and generally uses graphite or beryllium as a reflector. This kind of reactor can safely be pulsed to very high power levels (e.g. 25,000 MW) for fractions of a second. Its fuel gives the TRIGA a very strong negative temperature coefficient, and the rapid increase in power is quickly cut short by a negative reactivity effect of the hydride moderator.Other designs are moderated by heavy water (12 units) or graphite. A few are fast reactors, which require no moderator and can use a mixture of uranium and plutonium as fuel. Homogenous type reactors have a core comprising a solution of uranium salts as a liquid, contained in a tank about 300 mm diameter. The simple design made them popular early on, but only five are now operating. Research reactors have a wide range of uses, including analysis and testing of materials, and production of radioisotopes. Their capabilities are applied in many fields, within the nuclear industry as well as in fusion research, environmental science, advanced materials development, drug design and nuclear medicine. The IAEA lists several categories of broadly classified research reactors. They include 60 critical assemblies (usually zero power), 23 test reactors, 37 training facilities, two prototypes and even one producing electricity. But most (160) are largely for research, although some may also produce radioisotopes. As expensive scientific facilities, they tend to be multi-purpose, and many have been operating for more than 30 years.A total of over 670 research and test reactors has been built worldwide, 227 of these in the USA and 97 in the former Soviet Union. In the USA, 193 were commissioned in 1950s and 1960s.

### nuclear primacy d

#### Mobilization for a first strike means it’s not a surprise anymore—guarantees nuclear retaliation

**Starr 07**— Expert on Nuclear Proliferation AND Valery Yarynich (Steven, 4 March 2007, “Nuclear Primacy" is a Fallacy, http://www.globalresearch.ca/index.php?context=va&aid=4991, RBatra)

Third, in order to conduct a first strike it is necessary to implement a number of organizational and technical procedures within the strategic nuclear forces. This is because in peacetime there are numerous procedural and technological blocks in place which are designed to protect nuclear weapons against human error, accidents and sabotage. In order to remove such barriers as a preliminary step towards launching a nuclear first strike, it would require the participation of a significant number of crews on duty working at different operational levels.

The implementation of all the above mentioned circumstances as preparations for a “surprise” first strike would be **technically impossible to hide**. Therefore, the opposite side would have a certain amount of time to raise the combat readiness of its strategic nuclear forces. If Russia did that, then, as Lieber and Press recognize themselves, **nuclear retaliation is inevitable**.

Lieber and Press also assume that the Russian Early Warning System will be completely unable to reveal a massed American attack capable of destroying all Russian nuclear forces. “A critical issue for the outcome of a U.S. attack [they say] is the ability of Russia to launch on warning (i.e., quickly launch a retaliatory strike before its forces are destroyed). It is unlikely that Russia could do this.”

We believe this important conclusion demands more serious calculations than the mere statement that “it is unlikely”. It's necessary to prove that the Russian EWS will be completely incapable of revealing such massed American attack which is capable of destroying all Russian nuclear forces.

Admittedly, the Russian EWS is now weakened. However, if it is able to detect even a small part of the American attack, then it is impossible to rule out the possibility that Russia will react by utilizing the policy of Launch on Warning (LoW), i.e., launching its missiles before the attack is confirmed by nuclear detonations. The number of nuclear warheads in a Russian LoW strike will be far more than in case of a pure LuA (Launch under Attack) variant.

Thus, the implied ecological admissibility of a nuclear strike, the procedural and technical complexities of ordering and executing a surprise attack, and the assumed full inability of Russian EWS together constitute too many assumptions to be built into such a definitive definition of “Nuclear Primacy”.

A more detailed and technical version of the Foreign Affairs article can be found in the spring 2006 edition of International Security (see “The End of MAD? The Nuclear Dimension of U.S. Nuclear Primacy”). Yet even in this longer version of their article, a language of assumptions remains the characteristic feature of the methodology of Lieber and Press.

For example, they write, “The Russian early warning system would PROBABLY not give Russia 's leaders the time they need to retaliate; in fact it is questionable WHETHER it would give them any warning at all. Stealthy B-2 bombers COULD LIKELY penetrate Russian air defenses without detection. Furthermore, low-flying B-52 bombers COULD fire stealthy nuclear-armed cruise missiles from outside Russian airspace; these missiles — small, radar-absorbing, and flying at very low altitude — would LIKELY provide no warning before detonation.” We think this isn't the language of serious proofs, especially on such an important theme.

Lieber and Press state that, “Our model does not prove that a U.S. disarming attack against Russia would necessarily succeed. Nor does the model assume that the United States is likely to launch a nuclear first strike. Even if U.S. leaders were highly confident of success, a counterforce strike would entail enormous risks and costs.” We must ask: if this is so, then how can they predict that “a surprise attack at peacetime alert levels would have a reasonable chance of success”?

### nuclear deter

**We need 300 nuclear weapons to ensure deterrence—the status quo is way too much—zero impact to cutting the arsenal**

**Walt 10**—Professor at the Harvard Kennedy School of Government, Ph.D. in IR (Stephen, 24 May 2010, All the nukes that you can use, <http://walt.foreignpolicy.com/posts/2010/05/24/all_the_nukes_that_you_can_use>, RBatra)

Schaub and Forsythe argue that the United States could satisfy all its legitimate security requirements with an arsenal of 311 nuclear warheads, dispersed among bombers, submarine-launched ballistic missiles, and ICBM's. **Not a thousand. Not 1,550 plus a few thousand more in reserve. Only 311. That's all**. Actually, I think that number might still be too large, because you only need a very small handful of nuclear weapons (e.g., maybe a dozen?) to inflict a level of damage that no political leader could tolerate. As former National Security Advisor McGeorge Bundy famously wrote: A decision that would bring even one hydrogen bomb on one city of one's own country would be recognized in advance as a catastrophic blunder; ten bombs on ten cities would be a disaster beyond history; and a hundred bombs on a hundred cities are unthinkable." American policymakers clearly understand the compelling logic of minimum deterrence, or else they wouldn't be so worried when states like North Korea or (maybe) Iran seek to join the nuclear club. U.S. leaders recognize that even a handful of nuclear weapons in the hands of a hostile country constrains what we can do to that country (which is of course why some states want to get them in the first place). But if a very small number of weapons can induce such sobriety on our part, **why exactly do we need thousands, especially when our conventional forces are already far stronger than any other country on the planet?** Of course, the fact that deterrence isn't sensitive to the actual number of weapons also implies that having more weapons than we need isn't that dangerous, provided that you are very, very certain that you won't lose one, that your large arsenal won't encourage others with less reliable security arrangements to build up, and provided you have lots of money to pay for an arsenal you don't really need. But since I like saving money, would prefer that other states either didn't get nuclear weapons or kept their own arsenals small (and therefore easy to guard), and believe that **decreasing the number of warheads in the world is an important step in improving overall nuclear security**, I think Schaub and Forsythe's article should be taken seriously.

**Nuclear deterrence is a paper tiger**

**Li 6** – Director of the Arms Control Program and Professor of the Institute of International Studies (2006, Bin, China Security “Paper Tiger with Whitened Teeth,” http://www.chinasecurity.us/index.php?option=com\_content&view=article&id=213, Sawyer)

The power pattern in the world has significantly changed since the end of the cold war. The United States is indeed in a new period of power expansion. However, nuclear weapons of the United States provide little contribution to its fast growing power. Lieber and Press are therefore wrong to predict that the United States would gain new coercive power. First, the United States cannot develop a fully disarming nuclear strike capability against Russia and China given its intelligence deficiency; second, a disarming capability of surprise attack in peacetime cannot generate coercive power in crisis given the difficulty of signaling; third, the United States cannot gain new nuclear coercive power as its new methods of using nuclear weapons are **constrained by the nuclear taboo**. In this new era, **nuclear weapons essentially remain a paper tiger. U.S. nuclear modernization toward greater strike capability is just a whitening of the paper tiger’s teeth.** If more people in the world today understood that this fundamental nature of nuclear weapons will remain unchanged, even with the rise of American nuclear strike capabilities, we might still avoid the re-emergence of the Cold War’s worst nightmare scenarios.

**Costs are too high and there is no real incentive for America to intervene – the umbrella alone isn’t enough of a a guarantee to dissuade conflict.**

**White 11** – (2/3/11, Hugh, Visiting Fellow at the Lowy Institute for International Policy and Professor of Strategic Studies at the Australian National University, “Extended deterrence: A game of bluff,” Lowy Institute, http://lowyinterpreter.org/post/2011/02/03/Extended-deterrence-A-game-of-bluff.aspx DH)

But these are not the tough cases. The real question about the future of END is whether the US can credibly threaten nuclear attack against an adversary that could retaliate against the US – which for present purposes means Russia or China.

Take Europe first. If Moscow launches a conventional invasion of a NATO ally – say Latvia or Estonia – could America credibly threaten nuclear attack to force Russia to withdraw? Could it persuade Moscow that the independence of the Baltic States is so important to America that it would accept nuclear attack on the US to preserve it? That seems to me very doubtful, because Russia today does not have the potential to dominate Eurasia the way it did in the Cold War. The stakes for America are simply not as high – and not high enough.

What of China? As General Xiong once asked, is Taiwan's independence worth Los Angeles? More broadly, is anything on the western side of the Pacific important enough to Washington to convince Beijing that America would accept nuclear attack on its homeland to defend it? Even Tokyo?

This is the core question for the future of END: what is so important to Americans today that they are willing to suffer nuclear attack to defend it? And can the US persuade friends and allies that it is willing to make this sacrifice? Many would suggest the maintenance of a US-led world order is important enough, but I doubt that, especially when the non-military challenges to that order are so strong anyway.

I think the costs of nuclear attack are so high that nothing except the defence of America's own territory and independence would justify them. In the Cold War, when it seemed one power could dominate Eurasia, America's own security appeared to be at risk from a Eurasian hegemon. Today, with at least two and maybe four major Eurasian powers, that risk seems very remote.

So against any power capable of delivering nuclear weapons onto American soil, END is an anachronism. Neither America not its allies yet accept this. The sooner they do the better for everyone.

**Nuclear deterrence cannot be credible**

DFI International **1** [“Non-Nuclear Strategic Deterrence of State and Non-State Adversaries: Potential Approaches and Prospects for Success,” A Study for The Defense Threat Reduction Agency Advanced Systems and Concepts Office, FINAL REPORT, October 2001, pg. handle.dtic.mil/100.2/ADA459871]

Nuclear weapons are broadly accepted as being capable of inflicting massive damage, although controlling collateral damage can be a problem. In the current context, however, there is the potential for “self-deterrence” when it comes to the use of nuclear weapons due to concerns about domestic and international reactions to the use of such overwhelmingly destructive weapons in anything but the most extreme circumstances. Adversaries, therefore, are not likely to doubt the capability of nuclear weapons. However, with the exception of Russia and China, growing doubts exist over the credibility of nuclear threats. If such threats are not judged credible, **deterrence based on nuclear options is unlikely to significantly affect the risk calculations of WMD-armed adversaries**, especially if they are particularly risk-acceptant. In fact, the problems with the credibility of nuclear threats suggest that there is a “threshold” for the effectiveness of nuclear deterrence. In other words, adversaries may believe that nuclear retaliation is only credible in response to a substantial WMD attack and not likely for a lower-level or more limited WMD attack. Unfortunately, such an apparent or perceived threshold may also suggest that there are actions that may be taken by adversaries (such as limited use of WMD) that do not risk nuclear retaliation. This further undermines the credibility of deterrence based on nuclear options, especially for the lower-level uses of WMD from smaller adversaries. Conventional weapons appear to address many of these problems. They have advantages in that they seem to be a more credible threat given their potential for greater precision (to limit collateral damage) and an appreciation that the US would not feel constrained about their employment, unlike nuclear weapons. Pg. 14-15

### fusion fails

#### Global fusion solves all their generic spillover claims

Olynyk, ‘12

[Geoff, The Tech -- MIT, 3-6, “Opinion: GUEST COLUMN: Fusion research is a wise investment,” http://tech.mit.edu/V132/N9/olynyk.html]

The proposed budget ramps down the U.S. fusion program at a time when other countries are scaling up their efforts. In China, a new long-pulse tokamak called EAST is now producing scientific results, and the government has announced plans to train 2,000 fusion PhDs this decade. In Korea, fusion funding is guaranteed by law until 2040. Germany has a new stellarator (another type of magnetic fusion device) coming online next year. A consortium of six nations plus the EU is constructing the world’s first burning-plasma device, the ITER tokamak in France, which will produce 10 times more fusion power than external power put in to heat the plasma. The rest of the world sees the tremendous potential of magnetic fusion energy.

#### No commercialization – 10 times more costly than regular nuclear power

Martin Lamonica 6-29-2011; senior writer covering green tech and cutting-edge technologies. He joined CNET in 2002 to cover enterprise IT and Web development and was previously executive editor of IT publication InfoWorld; “A reality check on nuclear fusion at MIT” http://news.cnet.com/8301-11128\_3-20075206-54/a-reality-check-on-nuclear-fusion-at-mit/

Even what could be called mainstream fusion techniques still draw skepticism, but it's easy to see why people find it so compelling. The magnetic nuclear fusion studied at MIT uses an abundant energy source (a form of hydrogen found in seawater), power plants would pack a lot of energy in a much smaller footprint than solar or wind, and any radioactive material could be handled relatively easily. The waste from today's nuclear power plants, which split atoms (nuclear fission) to get usable energy, should have storage designed for tens of thousands of years while fusion would need 50-year repositories. But the punchline for nuclear fusion is that it has one big down side: it doesn't work. For Dennis Whyte, professor of nuclear science and engineering at MIT, that's not quite right. Fusion actually occurs at MIT's lab but nobody has been able to do it on a continuous basis. "I would state that we have the scientific and technical readiness to produce electricity on a very short time scale," Whyte said during a presentation. "It would not be economically efficient mostly because we couldn't demonstrate that it would be on all the time, which is essentially a technical argument. And it would cost much more than a (nuclear) fission power plant--it's hard to say exactly but at least a factor of 10 larger."

#### Empirics prove the aff will just result in costly failures.

Aym, ‘11

[Terrence, Helium.com, 9-18, “Europeans race to reignite fusion energy,” http://www.helium.com/items/2229416-europeans-race-to-reignite-fusion-energy]

There is, however, one major drawback: despite years of research and experimentation costing billions of dollars, no one has yet been able to make it work. Various methods to achieve fusion have been tried. The lined, toroidal (doughnut-shaped) magnetic chamber has held the most promise. The configuration of a fusion chamber of this type is referred to as a "tokamak." During the 1970s and 1980s a laser implosion approach was tried. Despite promising results, the technology was too difficult to control and the pulsing high energy lasers needed to keep the fusion process going were not practical for future commercial applications.

#### Err neg—this is nonsense

Chris Rhodes, Sussex University, Physical Chemistry Professor, 6/10/12, The Progress made in the Different Fields of Nuclear Fusion, oilprice.com/Alternative-Energy/Nuclear-Power/The-Progress-made-in-the-Different-Fields-of-Nuclear-Fusion.html

When I was about 10, I recall hearing that nuclear fusion power would become a reality "in about thirty years". The estimate has increased steadily since then, and now, forty odd years on, we hear that fusion power will come on-stream "in about fifty years". So, what is the real likelihood of fusion-based power stations coming to our aid in averting the imminent energy crisis? Getting two nuclei to fuse is not easy, since both carry a positive charge and hence their natural propensity is to repel one another. Therefore, a lot of energy is required to force them together so that they can fuse. To achieve this, suitable conditions of extremely high temperature, comparable to those found in stars, must be met. A specific temperature must be reached in order for particular nuclei to fuse with one another. This is termed the "critical ignition temperature", and is around 400 million degrees centigrade for two deuterium nuclei to fuse, while a more modest 100 million degrees is sufficient for a deuterium nucleus to fuse with a tritium nucleus. For this reason, it is deuterium-tritium fusion that is most sought after, since it should be most easily achieved and sustained.

One disadvantage of tritium is that it is radioactive and decays with a half-life of about 12 years, and consequently, it exists naturally in only negligible amounts. However, tritium may be "bred" from lithium using neutrons produced in an initial deuterium-tritium fusion. Ideally, the process would become self-sustaining, with lithium fuel being burned via conversion to tritium, which then fuses with deuterium, releasing more neutrons. While not unlimited, there are sufficient known resources of lithium to fire a global fusion programme for about a thousand years, mindful that there are many other uses for lithium, ranging for various types of battery to medication for schizophrenics. The supply would be effectively limitless if lithium could be extracted from the oceans.

In a working scenario, some of the energy produced by fusion would be required to maintain the high temperature of the fuel such that the fusion process becomes continuous. At the temperature of around 100 - 300 million degrees, the deuterium/lithium/tritium mixture will exist in the form of a plasma, in which the nuclei are naked (having lost their initial atomic electron clouds) and are hence exposed to fuse with one another.

The main difficulty which bedevils maintaining a working fusion reactor which might be used to fire a power station is containing the plasma, a process usually referred to as "confinement" and the process overall as “magnetic confinement fusion” (MCF). Essentially, the plasma is confined in a magnetic bottle, since its component charged nuclei and electrons tend to follow the field of magnetic force, which can be so arranged that the lines of force occupy a prescribed region and are thus centralised to a particular volume. However, the plasma is a "complex" system that readily becomes unstable and leaks away. Unlike a star, the plasma is highly rarefied (a low pressure gas), so that the proton-proton cycle that powers the sun could not be thus achieved on earth, as it is only the intensely high density of nuclei in the sun's core that allows the process to occur sustainably, and that the plasma is contained within its own gravitational mass, and isolated within the cold vacuum of space.

In June 2005, the EU, France, Japan, South Korea, China and the U.S. agreed to spend $12 billion to build an experimental fusion apparatus (called ITER) by 2014. It is planned that ITER will function as a research instrument for the following 20 years, and the knowledge gained will provide the basis for building a more advanced research machine. After another 30 years, if all goes well, the first commercial fusion powered electricity might come on-stream.

The Joint European Torus (JET)

I attended a fascinating event recently - a Cafe' Scientifique meeting held in the town of Reading in South East England. I have also performed in this arena, talking about "What Happens When the Oil Runs Out?", which remains a pertinent question. This time it was the turn of Dr Chris Warrick from the Culham Centre for Fusion Energy based near Abingdon in Oxfordshire, which hosts both the MAST (Mega Amp Spherical Tokamak) and the better known JET (Joint European Torus) experiments. In the audience was a veteran engineer/physicist who had worked on the pioneering ZETA4 experiment in the late 1950s, from which neutrons were detected leading to what proved later to be false claims that fusion had occurred, their true source being different versions of the same instability processes that had beset earlier machines.

Nonetheless, his comment was salient: "In the late 50s, we were told that fusion power was 20 years away and now, 50-odd years later it is maybe 60 years away." Indeed, JET has yet to produce a positive ratio of output power/input energy, and instability of the plasma is still a problem. Dr Warrick explained that while much of the plasma physics is now sorted-out, minor aberrations in the magnetic field allow some of the plasma to leak out, and if it touches the far colder walls of the confinement chamber, it simply "dies". In JET it is fusion of nuclei of the two hydrogen isotopes, deuterium and tritium that is being undertaken, a process that as noted earlier, requires a "temperature" of 100 million degrees.

I say "temperature" because the plasma is a rarefied (very low pressure) gas, and hence the collisions between particles are not sufficiently rapid that the term means the same distribution of energy as occurs under conditions of thermal equilibrium. It is much the same as the temperatures that may be quoted for molecules in the atmospheric region known as the thermosphere which lies some 80 kilometres above the surface of the Earth. Here too, the atmosphere is highly rarefied and thus derived temperatures refer to translational motion of molecules and are more usefully expressed as velocities. However expressed, at 100 million degrees centigrade, the nuclei of tritium and deuterium have sufficient translational velocity (have enough energy) that they can overcome the mutual repulsion arising from their positive charges and come close enough that they are drawn together by attractive nuclear forces and fuse, releasing vast amounts of energy in the process.

JET is not a small device, at 18 metres high, but bigger machines will be necessary before the technology is likely to give out more energy than it consumes. Despite the considerable volume of the chamber, it contains perhaps only one hundredth of a gram of gas, hence its very low pressure. There is another matter and that is how long the plasma and hence energy emission can be sustained. Presently it is fractions of a second but a serious "power station" would need to run for some hours. There is also the problem of getting useful energy from the plasma to convert into electricity even if the aforementioned and considerable problems can be overcome and a sustainable, large-scale plasma maintained.

The plan is to surround the chamber with a "blanket" of lithium with pipes running through it and some heat-exchanger fluid passing through them. The heated fluid would then pass on its heat to water and drive a steam-turbine, in the time-honoured fashion used for fossil fuel fired and nuclear power plants. Now my understanding is that this would not be lithium metal but some oxide material. The heat would be delivered in the form of very high energy neutrons that would be slowed-down as they encounter lithium nuclei on passing through the blanket. In principle this is a very neat trick, since absorption of a neutron by a lithium nucleus converts it to tritium, which could be fed back into the plasma as a fuel. Unlike deuterium, tritium does not exist is nature, being radioactive with a half-life of about 12 years. However produced, either separately or in the blanket, lithium is the ultimate fuel source, not tritium per se. Deuterium does exist in nature but only to the extent of one part in about two thousand of ordinary hydrogen (protium) and hence the energy costs of its separation are not inconsiderable.

The neutron flux produced by the plasma is very high, and to enhance the overall breeding efficiency of lithium to tritium the reactor would be surrounded with a “lithium” blanket about three feet thick. The intense neutron flux will render the material used to construct the reactor highly radioactive, to the extent that it would not be feasible for operators to enter its vicinity for routine maintenance. The radioactive material will need to be disposed of similarly to the requirements for nuclear waste generated by nuclear fission, and hence fusion is not as "clean" as is often claimed. Exposure to radiation of many potential materials necessary to make the reactor, blanket, and other components such as the heat-exchanger pipes would render them brittle, and so compromise their structural integrity. There is also the possibility that the lithium blanket around the reactor might be replaced by uranium, so enabling the option of breeding plutonium for use in nuclear weapons.

Providing a fairly intense magnetic field to confine the plasma (maybe Tesla - similar to that in a hospital MRI scanner) needs power (dc not ac as switching the polarity of the field would cause the plasma to collapse) and large power-supply units containing a lot of metals including rare earths which are mined and processed using fossil fuels. The issue of rare earths is troublesome already, and whether enough of them can be recovered to meet existing planned wind and electric car projects is debatable, let alone that additional pressure should be placed upon an already fragile resource to build a first generation of fusion power stations.

World supplies of lithium are also already stressed, and hence getting enough of it not only to make blankets for fusion reactors and tritium production but also for the millions-scale fleet of electric vehicles needed to divert our transportation energy demand away from oil is probably a bridge too far, unless we try getting it from seawater, which takes far more energy than mining lithium minerals. The engineering requirements too will be formidable, however, most likely forcing the need to confront problems as yet unknown, and even according to the most favourable predictions of the experts, fusion power is still 60 years away, if it will arrive at all. Given that the energy crisis will hit hard long before then, I suggest we look to more immediate solutions, mainly in terms of energy efficiency, for which there is ample scope.

To quote again the ZETA veteran, "I wonder if maybe man is not intended to have nuclear fusion," and all in all, other than from solar energy I wonder if he is right. At any rate, garnering real electrical power from fusion is so far distant as to have no impact on the more immediately pressing fossil fuels crisis, particularly for oil and natural gas. Fusion Power is a long-range "holy grail" and part of the illusion that humankind can continue in perpetuity to use energy on the scale that it presently does. Efficiency and conservation are the only real means to attenuate the impending crisis in energy and resources.

### asteroids

**No extinction—tech solves**

**Coates 2009** – former adjunct professor at George Washington University, President of the Kanawha Institute for the Study of the Future and was President of the International Association for Impact Assessment and was President of the Association for Science, Technology and Innovation, M.S., Hon D., FWAAS, FAAAS, (Joseph F., Futures 41, 694-705, "Risks and threats to civilization, humankind, and the earth”, ScienceDirect, WEA)

The most likely hit from a modest sized asteroid does not leave us without recourse. There is active research now on how to influence and what to do when we are faced with an impending asteroid hit. Keep in mind that because of the astronomical distances, paths can be extremely closely calculated while the asteroid is still far away in time and space. We could send up spacecraft to intersect and act on the threatening asteroid. One concept being developed is the gravity tractor, a large machine that would not land on the asteroid, but would create a gravity situation in which the asteroid would slowly move to a slightly different track, enough of a move to take a path avoiding the earth.

### peak

**New discoveries will triple reserves – new technology makes it cost effective**

**CERA 06** – Cambridge Energy Research Associates (“Peak Oil Theory – “World Running Out of Oil Soon” – Is Faulty; Could Distort Policy & Energy Debate”, 11/14,http://www.cera.com/aspx/cda/public1/news/pressReleases/pressReleaseDetails.aspx?CID=8444)

In contrast to a widely discussed theory that world oil production will soon reach a peak and go into sharp decline, a new analysis of the subject by Cambridge Energy Research Associates (CERA) finds that the remaining global oil resource base is actually 3.74 trillion barrels -- three times as large as the 1.2 trillion barrels estimated by the theory’s proponents -- and that the “peak oil” argument is based on faulty analysis which could, if accepted, distort critical policy and investment decisions and cloud the debate over the energy future.

“The global resource base of conventional and unconventional oils, including historical production of 1.08 trillion barrels and yet-to-be-produced resources, is 4.82 trillion barrels and likely to grow,” CERA Director of Oil Industry Activity Peter M. Jackson writes in Why the Peak Oil Theory Falls Down: Myths, Legends, and the Future of Oil Resources.  The CERA projection is based on the firm’s analysis of fields currently in production and those yet-to-be produced or discovered.

“The ‘peak oil’ theory causes confusion and can lead to inappropriate actions and turn attention away from the real issues,” Jackson observes.  “Oil is too critical to the global economy to allow fear to replace careful analysis about the very real challenges with delivering liquid fuels to meet the needs of growing economies.  This is a very important debate, and as such it deserves a rational and measured discourse.”

“This is the fifth time that the world is said to be running out of oil,” says CERA Chairman Daniel Yergin.  “Each time -- whether it was the ‘gasoline famine’ at the end of WWI or the ‘permanent shortage’ of the 1970s -- technology and the opening of new frontier areas has banished the specter of decline.  There’s no reason to think that technology is finished this time.”

## 1nr

### 2nc overview – daniels

#### DA outweighs the case – Daniels says Hagel nomination is key to prevent violent military transitions that cause global nuclear conflict – the magnitude to the DA is larger

David Bosco (a senior editor at Foreign Policy magazine) July 2006 “Forum: Keeping an eye peeled for World War III” http://www.post-gazette.com/pg/06211/709477-109.stm

The understanding that small but violent acts can spark global conflagration is etched into the world's consciousness. The reverberations from Princip's shots in the summer of 1914 ultimately took the lives of more than 10 million people, shattered four empires and dragged more than two dozen countries into war. This hot summer, as the world watches the violence in the Middle East, the awareness of peace's fragility is particularly acute. The bloodshed in Lebanon appears to be part of a broader upsurge in unrest. Iraq is suffering through one of its bloodiest months since the U.S.-led invasion in 2003. Taliban militants are burning schools and attacking villages in southern Afghanistan as the United States and NATO struggle to defend that country's fragile government. Nuclear-armed India is still cleaning up the wreckage from a large terrorist attack in which it suspects militants from rival Pakistan. The world is awash in weapons, North Korea and Iran are developing nuclear capabilities, and long-range missile technology is spreading like a virus. Some see the start of a global conflict. "We're in the early stages of what I would describe as the Third World War," former House Speaker Newt Gingrich said recently. Certain religious Web sites are abuzz with talk of Armageddon. There may be as much hyperbole as prophecy in the forecasts for world war. But it's not hard to conjure ways that today's hot spots could ignite. Consider the following scenarios: Targeting Iran: As Israeli troops seek out and destroy Hezbollah forces in southern Lebanon, intelligence officials spot a shipment of longer-range Iranian missiles heading for Lebanon. The Israeli government decides to strike the convoy and Iranian nuclear facilities simultaneously. After Iran has recovered from the shock, Revolutionary Guards surging across the border into Iraq, bent on striking Israel's American allies. Governments in Syria, Jordan, Egypt and Saudi Arabia face violent street protests demanding retribution against Israel -- and they eventually yield, triggering a major regional war. Missiles away: With the world's eyes on the Middle East, North Korea's Kim Jong Il decides to continue the fireworks show he began earlier this month. But this time his brinksmanship pushes events over the brink. A missile designed to fall into the sea near Japan goes astray and hits Tokyo, killing a dozen civilians. Incensed, the United States, Japan's treaty ally, bombs North Korean missile and nuclear sites. North Korean artillery batteries fire on Seoul, and South Korean and U.S. troops respond. Meanwhile, Chinese troops cross the border from the north to stem the flow of desperate refugees just as U.S. troops advance from the south. Suddenly, the world's superpower and the newest great power are nose to nose. Loose nukes: Al-Qaida has had Pakistani President Pervez Musharraf in its sights for years, and the organization finally gets its man. Pakistan descends into chaos as militants roam the streets and the army struggles to restore order. India decides to exploit the vacuum and punish the Kashmir-based militants it blames for the recent Mumbai railway bombings. Meanwhile, U.S. special operations forces sent to secure Pakistani nuclear facilities face off against an angry mob. The empire strikes back: Pressure for democratic reform erupts in autocratic Belarus. As protesters mass outside the parliament in Minsk, president Alexander Lukashenko requests Russian support. After protesters are beaten and killed, they appeal for help, and neighboring Poland -- a NATO member with bitter memories of Soviet repression -- launches a humanitarian mission to shelter the regime's opponents. Polish and Russian troops clash, and a confrontation with NATO looms. As in the run-up to other wars, there is today more than enough tinder lying around to spark a great power conflict. The question is how effective the major powers have become at managing regional conflicts and preventing them from escalating. After two world wars and the decades-long Cold War, what has the world learned about managing conflict? The end of the Cold War had the salutary effect of dialing down many regional conflicts. In the 1960s and 1970s, every crisis in the Middle East had the potential to draw in the superpowers in defense of their respective client states. The rest of the world was also part of the Cold War chessboard. Compare the almost invisible U.N. peacekeeping mission in Congo today to the deeply controversial mission there in the early 1960s. (The Soviets were convinced that the U.N. mission was supporting a U.S. puppet, and Russian diplomats stormed out of several Security Council meetings in protest.) From Angola to Afghanistan, nearly every Cold War conflict was a proxy war. Now, many local crises can be handed off to the humanitarians or simply ignored. But the end of the bipolar world has a downside. In the old days, the two competing superpowers sometimes reined in bellicose client states out of fear that regional conflicts would escalate. Which of the major powers today can claim to have such influence over Tehran or Pyongyang? Today's world has one great advantage: None of the leading powers appears determined to reorder international affairs as Germany was before both world wars and as Japan was in the years before World War II. True, China is a rapidly rising power -- an often destabilizing phenomenon in international relations -- but it appears inclined to focus on economic growth rather than military conquest (with the possible exception of Taiwan). Russia is resentful about its fall from superpower status, but it also seems reconciled to U.S. military dominance and more interested in tapping its massive oil and gas reserves than in rebuilding its decrepit military. Indeed, U.S. military superiority seems to be a key to global stability. Some theories of international relations predict that other major powers will eventually band together to challenge American might, but it's hard to find much evidence of such behavior. The United States, after all, invaded Iraq without U.N. approval and yet there was not even a hint that France, Russia or China would respond militarily. There is another factor working in favor of great-power caution: nuclear weapons. Europe's leaders on the eve of World War I can perhaps be forgiven for not understanding the carnage they were about to unleash. That generation grew up in a world of short wars that did limited damage. Leaders today should have no such illusions. The installation of emergency hot lines between national capitals was a recognition of the need for fast and clear communication in times of crisis. Diplomatic tools have advanced too. Sluggish though it may be, the U.N. Security Council regularly gathers the great powers' representatives in a room to hash out developing crises. So there is reason to hope that the major powers have little interest in playing with fire and the tools to stamp it out. But complacency is dangerous. The British economist Norman Angell once argued persuasively that deep economic links made conflict between the great powers obsolete. His book appeared in 1910 and was still in shops when Europe's armies poured across their borders in 1914.

### A2 Doesn’t spend money

#### The plan causes agenda overstretch - it is UNEXPECTED

Margaret Hoover (Republican strategist and CNN contributor), Piers Morgan (Host of Piers Morgan Tonight) and Ryan Lizza (CNN Contributor) January 19, 2013 “Obama's Second Term” http://transcripts.cnn.com/TRANSCRIPTS/1301/19/pmt.01.html

HOOVER: I absolutely am. You can try to caricature me into a terrible Republican, but there are plenty of us that are perfectly patriotic. What - look, he has a very big plate. He has a huge agenda that he wants to get through. And he still has the reality of a divided Congress. I think Republicans in the House of Representatives have realized they are one half of one third of the federal government, and they're trying to get their expectations in check in terms of what they can do, specifically on the debt ceiling, for example. And we've just heard that the House Republicans are going to try to negotiate a short-term debt ceiling deal so they can then try to go for a grand bargain.¶ Second-term presidencies have been just spent and filled with misspent political capital that has just overreached in terms of presidents looking for a legacy, and trying to go for a legacy and then overspending their political capital. So I think that's the risk that President Obama --¶ MORGAN: Ryan, it's interesting in the CNN poll of polls that has just come out, how is President Obama handling his job as president, approve 53 percent, disapprove 42 percent. So that's a plus for him. But when they are asked how is the country headed they say in the right direction 35 percent and the wrong direction 57 percent. So they approve of the president, but they think he's going completely in the wrong direction.¶ RYAN LIZZA, CNN CONTRIBUTOR: Yes.¶ MORGAN: And he's a lucky boy many would argue that he's gotten a second term given the state of the economy, and given the fact that most Americans believe the country is going in the wrong direction. But he's been given that lucky second chance. And he campaigned well. You have to acknowledge that. What are the big challenges for him in the second term?¶ LIZZA: Well the first thing every president has to be careful of in a second term is, as Margaret alluded to, is overreach, misinterpreting your mandates. There's always a period after you win, and especially after you win a reelection where you -- it seems like your first-term policies have been validated that you look at those results and you think you're all powerful.¶ The famous example in recent history is George W. Bush. In 2005, remember he came out and did that press conference and said he had political capital and he meant to spend it. And the first thing he did was try to pass a plan to reform Social Security that was just destroyed by the Democrats.¶ And then Katrina happened and his presidency was over by the end of 2005, at least the second term. So, I spent a lot of time reporting on this the last year, talking to White House people, and they were very acutely aware of the dangers hidden in a second term. And I think the -- I think what they'll be looking for is not over interpreting that mandate, putting out an agenda one that he campaigned on, right, not doing things he didn't talk about in the campaign, but two, trying to find some kind of bipartisan compromise in a Congress that is very polarized.

Plan pushes major initiatives off the agenda

### GOCO

#### Agency action links to politics

Thomas McGarity, Endowed Chair in Administrative Law, University of Texas School of Law, May 2012, ARTICLE: ADMINISTRATIVE LAW AS BLOOD SPORT: POLICY EROSION IN A HIGHLY PARTISAN AGE, 61 Duke L.J. 1671

The interchange-fee rulemaking experience illustrates how stakeholders in high-stakes rulemakings have begun going beyond the conventional responses to rulemaking initiatives by adopting a new toolbox of strategies better suited to the deeply divided political economy. If the players on one side of the policy debate perceive that they are unlikely to prevail in the administrative arena, they will move the implementation game to another arena - the White House, a congressional hearing, a political fundraising dinner, a think-tank white paper, talk-radio programs, attack advertising, telephone solicitation and "push polls," or Internet blogs. Many of these new venues were amply used in the battle that accompanied the interchange-fee rulemaking. In addition, although lawyers for the stakeholders employ the careful language of administrative law in arenas in which that language is expected, spokespersons and allies also employ the heated rhetoric of modern political discourse in arenas in which that language is more likely to succeed. This Part probes these, among other, contours of blood-sport rulemaking.

#### We have the best new studies

Thomas McGarity, Endowed Chair in Administrative Law, University of Texas School of Law, May 2012, ARTICLE: ADMINISTRATIVE LAW AS BLOOD SPORT: POLICY EROSION IN A HIGHLY PARTISAN AGE, 61 Duke L.J. 1671

In this Article, I raise the possibility that the nation has entered a period in which the population is so deeply divided about the proper role of government, regulated industries are so willing to spend millions of dollars to vindicate their interests, and political discourse is so unrestrained that an even more expansive model of implementation may be warranted, at least in the context of high-stakes rulemaking initiatives. n23 First, the implementation game has spread to arenas that are far less structured and far more political than the agency hearing rooms and appellate courtrooms of the past. Second, the roster of players has expanded beyond agency and OIRA staffs, advocates for the regulated industry and beneficiary groups, and congressional aides to include individuals and organizations with broad policy agendas, such as the U.S. Chamber of Commerce, think tanks, grassroots organizations, media pundits, and Internet bloggers. Third, because many parties play the implementation game in multiple arenas, the game has become far more strategic and the range of allowable tactics has widened rather dramatically. Finally, in this deeply divided political economy, the players in the implementation game no longer make a pretense of separation between the domains of politics and administrative law, and they are far less restrained in the rhetoric they employ to influence agency policymaking. n24

In this new milieu, "winning" can mean more than compelling unreasonable delays in agency action, invoking APA procedures to impede the policymaking process, or persuading the agency to accept a particular position on the relevant law and facts. Winning can consist of extracting promises from nominees during the confirmation process, preventing the confirmation of disfavored nominees, or preventing the confirmation of any agency leaders until the administration has agreed to change the agency's decisionmaking structure. Winning can also mean incapacitating the agency by reducing its annual appropriation, repealing the agency's organic act, or whittling away its regulatory authority through rifle-shot riders attached to must-pass legislation. n25 The players are less reluctant to attack agencies and the statutes those agencies administer head on. The players launch their attacks much earlier in the evolution of regulatory programs, and they feel free to go beyond attacks on the agencies as institutions to launch ad hominem attacks on agency decisionmakers.

In short, I raise the possibility that, for some high-stakes rulemaking initiatives in some areas of regulation, implementation is not so much "politics by other means" as it is "politics as usual." And because politics is so very different from the deliberative, lawyer-dominated domain of traditional administrative law, the word "law" may no longer be an accurate descriptor. Former U.S. [\*1681] Securities and Exchange Commission (SEC) Chairman Arthur Levitt referred in 2010 to federal regulation as a "kind of a blood sport" in which the regulated industries attempt "to make the particular agency" promulgating an unwelcome regulation "look stupid or inept or venal." n27 If the implementation of regulatory statutes has become a blood sport in important contexts, and if the goal of administrative law extends beyond ensuring procedural regularity to a concern about the effective implementation of legislation, then it would behoove administrative-law scholars to pay attention to the larger setting in which informal rulemaking now takes place and to begin thinking about the implications of these developments for the field.

### 2nc link wall

#### Obama is staying away from fusion -- there’s no political support.

Vastag, ‘12

[Brian, Washington Post, 6-25, “Budget cuts threaten pursuit of nuclear fusion as a clean energy source,” http://www.washingtonpost.com/national/health-science/budget-cuts-threaten-pursuit-of-nuclear-fusion-as-a-clean-energy-source/2012/06/25/gJQAKlpS2V\_story.html]

Fusion scientists have plenty of possible solutions they want to test, said George “Hutch” Neilson, the Princeton lab’s deputy head. But he said there is no national or international road map for moving from the relatively small plasma experiments of today to the operational power plants of tomorrow. “There’s enormous debate on how to get there,” says Prager. And little political support in the United States for the needed investment. Obama has said that he favors an “all of the above” energy strategy: more drilling for gas and oil, more investment in solar and wind, more traditional nuclear. Fusion, however, is absent from the list. Energy Secretary Steven Chu rarely mentions it. But at a March Senate hearing on his agency’s budget request, Sen. Diane Feinstein (D-Calif.) forced the Nobel Prize-winning physicist to address the president’s proposed cuts.

#### Fusion fundings unpopular -- requires capital to get it done.

Forbes, 11-1-12

[“The Global Race For Fusion Power”]

And to turn a scientific experiment into a power plant would require creating a laser fusion system that works flawlessly hour after hour. The NIF can fire its lasers at a hydrogen target once every 10,000 seconds or so. A power plant would need to compress hydrogen targets ten times a second to produce around a gigawatt. Another problem: money and political willpower. Although fusion has received support from both sides of the political aisle, funding for R&D remains far more challenging in the U.S. now than it decades, or even a few years, ago. The New York Times recently suggested Congress take a hard look at continuing it, considering the annual operating budget comes to $290 million. (The cumulative budget for NIF exceeds $3.5 billion, money could have been used to for farm subsidies or weapons systems that will never go into battle.)

#### Even if theres tacit agreement over the aff, partisan fights are inevitable.

Kondracke, ‘8

[Morton, executive editor -- Roll Call, 6-26, “Partisanship scuttling energy research advantages,” The York Dispatch (Pennsylvania), Lexis]

Funding cuts are especially dire for science programs at the Department of Energy, resulting in layoffs at national laboratories and cuts in university research in the physical sciences. There's widespread bipartisan agreement -- in principle -- that the United States needs to increase funding for basic research, science education and energy innovation. But, somehow, what everybody agrees to in principle doesn't get done in practice -- either because of partisan rancor or competing priorities.

#### Stakeholders backlash to removing restrictions

**McGarity, 12** – Endowed Chair in Administrative Law, University of Texas School of Law (Thomas, “ADMINISTRATIVE LAW AS BLOOD SPORT: POLICY EROSION IN A HIGHLY PARTISAN AGE” 61 Duke L.J. 1671, May, lexis)

The interchange-fee rulemaking experience illustrates how stakeholders in high-stakes rulemakings have begun going beyond the conventional responses to rulemaking initiatives by adopting a new toolbox of strategies better suited to the deeply divided political economy. If the players on one side of the policy debate perceive that they are unlikely to prevail in the administrative arena, they will move the implementation game to another arena - the White House, a congressional hearing, a political fundraising dinner, a think-tank white paper, talk-radio programs, attack advertising, telephone solicitation and "push polls," or Internet blogs. Many of these new venues were amply used in the battle that accompanied the interchange-fee rulemaking. In addition, although lawyers for the stakeholders employ the careful language of administrative law in arenas in which that language is expected, spokespersons and allies also employ the heated rhetoric of modern political discourse in arenas in which that language is more likely to succeed. This Part probes these, among other, contours of blood-sport rulemaking.

### 2nc a2 past fights

#### Prefer issues specific uniqueness – proves it is still passing now

#### Their evidence is about Gridlock --- WHICH doesn’t exist now

Shep Melnick (the Thomas P. O’Neill Jr. Professor of American Politics at Boston College) Winter 2013 “The Gridlock Illusion” http://www.wilsonquarterly.com/article.cfm?AID=2239

The stalemate/gridlock argument is misleading not only because it ignores so many accomplishments, but also because it focuses so intently on just one small part of domestic policy, namely passage of major pieces of legislation at the national level. Lost in this picture are the daily decisions of administrators, judges, and state and local officials, as well as members of Congress engaged in the quotidian business of passing appropriations, reauthorizations, and budget reconciliation bills. Taken individually, these decisions might seem like small potatoes, but collectively they can produce significant policy change.¶ Critics of the Constitution overlook the fact that by creating multiple “veto points,” our political system simultaneously creates multiple points of access for policy entrepreneurs and claimants. Every “veto point” that can be used to block action is also an “opportunity point” that can be used to initiate or augment government activity.¶

#### The hearing is next Thursday – no fiscal stuff first

Donna Cassata (writer for Capital Hill Blue) January 25, 2013 “Democratic support growing for Hagel nomination” http://www.capitolhillblue.com/node/46165

“When we are faced with unpredictable national security crises, we can’t afford to have a secretary of defense who has unpredictable judgment,” Barrasso wrote.¶ Other lawmakers have said they are waiting for Hagel’s confirmation hearing next Thursday in the Senate Armed Services Committee.

#### Says, it means PC is low, but it is high now

Chris Weigant (writer for the Huffington Post) January 23, 2013 “Handicapping Obama's Second Term Agenda” http://www.huffingtonpost.com/chris-weigant/obama-second-term\_b\_2537802.html

Of course, I could be wrong about any or all of these predictions. I have no special knowledge of how things will work out in Congress in the immediate future. I'm merely making educated guesses about what Obama will be able to achieve in at least the first few years of his second term. Obama has a lot of political capital right now, but that could easily change soon. The House Republicans seem almost demoralized right now, and Obama has successfully splintered them and called their bluff on two big issues already -- but they could regroup and decide to block everything the White House wants, and damn the political consequences. Unseen issues will pop up both on the domestic and foreign policy stages, as they always do. But, for now, this is my take on how the next few years are going to play out in Washington. Time will tell whether I've been too optimistic or too pessimistic on any or all of Obama's main agenda items. We'll just have to wait and see.

### 2nc a2 uniqueness overwhelms

#### Hagel confirmation fight will be huge

Jennifer Rubin (writer for the Washington Post) January 16, 2013 “Hagel not winning over the public” http://www.washingtonpost.com/blogs/right-turn/wp/2013/01/16/hagel-not-winning-over-the-public/

The Post-ABC polls show 42 percent of Americans approve of the Chuck Hagel nomination. This is poor by any historical measure. At the time of her nomination, Hillary Clinton got the support of 71 percent of Americans in a CNN poll taken in December, 2008, while 83 percent approved of Robert Gates continuing as secretary of defense. Defense secretaries, and to an even greater extent secretaries of state, have generally enjoyed excellent ratings form the public, perhaps because they are seen to be above the political fray. Even at the time of his resignation, Donald Rumsfeld’s approval hovered in the 50 percent range.¶ Moreover, Hagel is unusually polarizing for a defense secretary. The Post-ABC poll shows “the president’s nominee peaks at 61 percent among Democrats, drops to 40 percent among independents and then again to just 28 percent with Republicans. More Republicans (35 percent) oppose Hagel’s selection, with about twice as many holding strongly unfavorable views as hold strongly favorable views.” Roughly a third of Americans have no opinion of him. In short, for Republican senators, should the numbers remain constant, there is no upside with voters in voting to confirm Hagel and for Democrats in red states a vote to confirm Hagel is problematic, at best.¶ Hagel’s approval mirrors that of John Ashcroft (ranging from 54 to 26 percent), who had a contentious confirmation process in 2001 (drawing 42 no votes) and Harriet Miers (44 percent), whose nomination to the Supreme Court was pulled in 2005.¶ The White House has been on defense since the Hagel nomination, and even before. Opponents of the nomination, who are launching a full-throttle public campaign against him, have been making their case while the Obama team has tried to deflect the incoming barrage of negatives. What the White House hasn’t done is make an effective affirmative case for Hagel aside from the fact he is a veteran. Unless they do so, Hagel’s numbers are likely to get worse leading up to the confirmation hearings.

#### Political landmines like the plan can derail the effort

Josh Levs (writer for CNN politics) January 7, 2013 “Sparks could fly in Hagel confirmation hearings” http://www.cnn.com/2013/01/07/politics/hagel-defense/?hpt=hp\_t1

He would also be one of the few defense secretaries who was wounded at war, President Barack Obama said Monday, announcing his selection to take over for outgoing Defense Secretary Leon Panetta. If Hagel is confirmed, the president said, it will be "historic." But for Hagel, the road from nomination to confirmation is packed with obstacles -- political landmines that could derail the effort.

#### First, even if he was overwhelmingly winning now – making the vote closer cripples his effectiveness and triggers our impacts

Plus Media Solutions January 20, 2013 “California: Battle over Hagel’s Nomination Shouldn’t Threaten His Clout in Office” Lexis

Chuck Hagel’s path to confirmation to be the next defense secretary may seem rocky now, but if the former Republican senator from Nebraska wins the approval of the Senate, his ability to advance his priorities for the Pentagon on Capitol Hill should not be diminished, according to CQ.¶ Most analysts contacted by CQ believe Hagel will receive support from about 70 senators, a threshold which should offer him solid footing at the helm of the Defense Department. Opposition to Hagel over fears that he wants to slash the size and scope of the military, though, may be trickier to overcome. And if the fight over his nomination continues to be contentious and he is approved by only a handful of votes, Hagel likely would find himself in a more precarious position when approaching Congress.

### A2 Hagel Not key

#### Hagel’s key to foreign policy restraint that prevents unsustainable squandering of U.S. power---the alternative is Flournoy who would lock in a neocon foreign policy

Kelley Beaucar Vlahos 12-25, longtime political reporter for FoxNews.com and a contributing editor at The American Conservative, Washington correspondent for Homeland Security Today magazine, 12/25/12, “Give Us Chuck Hagel for Christmas,” <http://original.antiwar.com/vlahos/2012/12/24/give-us-hagel-for-christmas/>

Now a Democratic President is reportedly mulling him for defense secretary and the same Republican automatons and neoconservative harpies are pulling no punches to thwart it. They complain about his allegedly insufficient support of Israel (massaged, cajoled and translated for full-effect into charges of anti-Semitism), driven in part by his unwillingness to impose harsh economic sanctions or use of force against Iran. He also voted against designating Hezbollah a terrorist organization, and has encouraged open relations with Hamas in hopes of reanimating the corpse of the Middle East pace process. Furthermore, Hagel’s flagrant disdain for the runaway MIC (military industrial complex), preemptive war, and senseless foreign occupation is such an aberration to the Washington establishment that when the bunker busters in Congress, American Israel supporters and rightwing 101st Keyboard Brigade heard he might be nominated, their attack was so immediate and vicious it’ll likely serve as a model for smear efficiency for years to come. If the U.S. Army had deployed these superlative tactics in say, Afghanistan, they might have actually won the so-called “war of perception” over the Taliban 10 years ago. Too bad most of Hagel’s critics prefer calling the shots from over here, rather than putting their rear-ends in harm’s way over there. The War Against Hagel has hardly been decisive, however, at least as we near the end of the year, leaving some space for his supporters to mount a proper defense, which of this writing, is increasingly vigorous. There seems to be a common theme to every blog post and op-ed penned for his purpose: the man is a welcome independent thinker in the Era of the Borg — and he’s no phony, else he would have safely buzzed off with the rest of the political hive long ago. The Atlantic’s Jeffrey Goldberg, usually quite scornful of Realist foreign policy arguments — especially concerning Iran — said Thursday he worries about rightwing developments in Israel even more than Hagel’s purportedly soft approach on Iran, and suggested quite baldy that Hagel’s independence would be a help not a hindrance where it counts: What we need are American officials who will speak with disconcerting bluntness to Israel about the choices it is making…Maybe the time has come to redefine the term “pro-Israel” to include, in addition to providing support against Iran (a noble cause); help with the Iron Dome system (also a noble cause); and support to maintain Israel’s qualitative military edge (ditto), the straightest of straight talk about Israel’s self-destructive policies on the West Bank. Maybe Hagel, who is not bound to old models, could be useful in this regard. Many of us see Hagel’s impact in much broader terms than just the Israel question. We’ve had too many armchair generals and dutiful yes men at the levers of power, cleaving to an unsustainable post-9/11 orthodoxy that has militarized our foreign policy and politicized our military. The neoconservatism of the Bush years has bled literally into the so-called humanitarian interventionism of the Obama era, and for the first time, there is an opportunity to check that with the presence of a known Realist who, as Harvard’s Stephen Walt says, is “opposed to squandering U.S. power, prestige, and wealth on misbegotten crusades,” and is immune to the “threat inflation” both sides routinely engage in to justify lining the pockets of the defense industry. After nearly 12 years of constant war, Hagel’s references to Iraq and Afghanistan as a meat grinder to which we’ve wastefully sent too many of our own children, and his belief that he is the “the real conservative” because he actually calls for restraint, should be a refreshing prospect, and not feared by Americans conditioned to accept there is a military solution for every problem. “In a town dominated by often-unexamined conventional wisdom, the appointment of Hagel to DoD would be a welcome relief,” wrote Michael Cohen for The Guardian last week. Reached on the phone, Cohen told me that Hagel would be a “transformational pick,” but acknowledged that the challenges loom large for a non-conformist now squared against not only members of his own party, but neoconservatives wielding their “long knives,” and the pro-war wing of the Democratic establishment, too. “Look, he is not one of them,” Cohen said, “he’s not a neoconservative nor a liberal hawk, he thinks there should be limits on American power.” Although President Obama has, so far, not said a word about Hagel, the former senator who quietly spent the last four years chairing the moderate Atlantic Council, is enjoying an enthusiastic defense from myriad commentators across the mainstream, including Andrew Sullivan, Steve Clemons, Peter Beinart — even Jim Judis at The New Republic. Several ambassadors — including Bush-era Nick Burns and Ryan Crocker and three Israel representatives — signed on to a letter encouraging his nomination. Meanwhile, The National Journal and The Washington Post have published biographical sketches emphasizing Hagel’s Vietnam War record and its impact on his post-war career and personal philosophy (this hardly makes up, however, for the Post’s incoherent broadside published by its editorial page on Dec. 19). And of course, The American Conservative’s Daniel Larison and Scott McConnell, not to mention our own Justin Raimondo, are astutely swatting away the haters at every turn of this increasingly torrid offensive. Michele Flournoy But while many of us here at Antiwar would like a Hagel nomination for Christmas, the biggest concern (aside from his Swift Boating) is that we might find Michele Flournoy under the tree instead. For those who never heard of her, she founded the Center for a New American Security in 2007 in anticipation of a new Democratic White House. The think tank was designed to promote a more muscular Democratic military policy, which meant its top people supported Hillary Clinton for president as well as the U.S. counterinsurgency in Iraq, and then Afghanistan, known then as the Petraeus Doctrine. Once Obama won, it became the go-to policy shop for the White House and a revolving door to the Pentagon and State Department for its senior fellows. Flournoy went on to take Doug Feith’s position as Undersecretary of Defense for Policy, the No. 3 job at the Pentagon. What she actually did in the fabled “E-Ring” to advance policy or to help extricate the military from an increasingly disastrous war in Afghanistan, is anyone’s guess. But the “hot policy wonk” and top COINdinista apparently made all the right friends and greased all the right skids, and is now the favored pick by the neocons, who see a kindred soul where Hagel is just heartburn ready to happen. So buttressed is Flournoy by the Washington elite that people like Paul Wolfowitz, who in all reality should be ignored completely for his role in one of the worst war blunders in American history, are rolling out to defend her (in Wolfowitz’s case, maybe he should have cooled his wheels at home). After admitting he’s “not deeply familiar with Michele Flournoy’s record at the Defense Department or with her overall qualifications to be Secretary of Defense,” he says the fact 3,500 Afghan security forces have died this year (compared to 307 Americans) is proof enough she knows what she is doing. I say it’s proof enough that nothing has really changed since the Bush administration, except there are more troops in Afghanistan now (about 68,000) and the U.S. casualty count was much lower then —- 117 in 2007 to be exact. When liberal flak Eleanor Clift wrote about the prospects of the “first female defense secretary” back in November, all she could muster in her favor was Flournoy’s Oxford pedigree, a stint in the lackluster Clinton Pentagon policy shop and quotes like these from former colleagues: “she has spent a great deal of time thinking how to deploy our military instruments economically and effectively.” Glad she was thinking about it before she left her post in February. Not much came out of if, however, if today’s accounts of continuing bloat, waste and mission creep are any indication. Frankly, one hears a lot about Flournoy the “team player” but very little about her vision, ideas or actual accomplishments. The fact is, “the team” has been on a losing streak in Afghanistan since Obama took office, while her think tank, of which she continues to serve on the board of directors, has reaped all the benefits and influence as a conduit between the Pentagon, Foggy Bottom, the White House and greedy defense industry. “She’s a safe pick, she will carry the water — if you pick Hagel it would be saying ‘I want to push the envelope a little bit on foreign policy,’” said Cohen, “pushing it in a more realist direction than we have in the past.” Perhaps that is why so many of us here are excited about the prospect. There are some areas where Hagel and the readers on this page might diverge, particularly on domestic issues. He’s a solid pro-life social conservative. He voted for the Patriot Act (he later fought for broader constitutional safeguards, saying he took an oath to protect the constitution, not “an oath of office to my party or my president”). We don’t know yet where he would stand on the controversial detention provisions in the National Defense Authorization Act (NDAA). We have no idea whether he would stanch the flow of U.S. personnel and weapons into Africa or how he would deal with a newly inherited drone war. As for the Pentagon labyrinth itself, as University of Texas professor (and expert COIN critic) Celeste Ward Gventer tells me, “the problems are systemic and largely exceed the decision or personality of one man, even if he is at the apex.” Still, if a Flournoy pick would signal an endorsement of the status quo, a Hagel nod would serve to challenge it. This inclination to question policy is quite attractive to observers like us who are tired of living in a fake candy cane marshmallow bubble world when it comes to foreign policy and national security. As a senator, Hagel often addressed these issues realistically, with no regard to how it might hurt his chances for a presidential nomination, which turned out to be short-lived as a result (quite sad, considering the parade of ham-n-egger Republicans who ended up running, and losing, in the last two elections)

#### Restraint’s key to prevent war with Russia and China---defuses Georgia, Taiwan and the South China Seas

Paul K. MacDonald 11, Assistant Professor of Political Science at Williams College, and Joseph M. Parent, Assistant Professor of Political Science at the University of Miami, November/December 2011, “The Wisdom of Retrenchment: America Must Cut Back to Move Forward,” Foreign Affairs, Vol. 90, No. 6

Curbing the United States' commitments would reduce risks, but it cannot eliminate them. Adversaries may fill regional power vacuums, and allies will never behave exactly as Washington would prefer. Yet those costs would be outweighed by the concrete benefits of pulling back. A focus on the United States' core interests in western Europe would limit the risk of catastrophic clashes with Russia over ethnic enclaves in Georgia or Moldova by allowing the United States to avoid commitments it would be unwise to honor. By narrowing its commitments in Asia, the United States could lessen the likelihood of conflict over issues such as the status of Taiwan or competing maritime claims in the South China Sea. Just as the United Kingdom tempered its commitments and accommodated U.S. interests in the Western Hemisphere at the turn of the last century, the United States should now temper its commitments and cultivate a lasting compromise with China over Taiwan.

# round 7 v. harvard dt

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#### Hagel now but it’s not a lock

Aaron Blake (writer for the Washington Post) 1/15, 2013 “Hagel's path to confirmation clears, but hearings loom” ProQuest¶

Sen. Charles Schumer's (D-N.Y.) decision to support Chuck Hagel's nomination for Secretary of Defense means the job is now Hagel's for the taking -- provided he can avoid a major screw-up at his confirmation hearings.¶ Schumer's announcement Tuesday that he intended to support Hagel's nomination -- after some initial hesitation -- signals that Senate Democrats will likely be united in support of President Obama's nominee to head the Pentagon.¶ Schumer, as we've written before, was the most important Democrat in this whole process, given his pro-Israel record and his stature as a party leader. And his support means Hagel has cleared a major hurdle, with other Democrats now likely to feel more comfortable supporting him.¶ Republicans acknowledged after Schumer's announcement that they would have to be almost completely united in their opposition if they want to take Hagel down.¶ But that becomes much harder without some Democrats joining in opposition.¶ Democrats have 55 votes in the Senate, which means that with a unified caucus they would need to pick off just five Republicans to overcome a filibuster. That seems pretty doable even in a chamber in which Hagel has alienated many of his former GOP colleagues.¶ From here, all of this depends very much on how the confirmation hearings go. Even Schumer seemed to temper his support for Hagel a little by saying he is "currently prepared" to vote for him.¶ "While the Senate confirmation process must be allowed to run its course, it is my hope that Senator Hagel's thorough explanations will remove any lingering controversy regarding his nomination," Schumer said.¶ We don't mean to say that Schumer isn't on-board, just that hearings matter and Hagel will need to be on his game. And other Democrats, including Sens. Richard Blumenthal (D-Conn.) and Kirsten Gillibrand (D-N.Y.), have expressed significant concerns about Hagel, so he hasn't locked down all Democrats just yet.¶ But it seems only a matter of time before these Democrats join Schumer in support, and at this point, the GOP base isn't overwhelmingly anti-Hagel. About the only thing that could change either of those is a major hiccup at his confirmation hearings.

#### SMR debates are polarizing

Carper and Schmid 11 Ross Carper (rosscarper@gmail.com), a writer based in Washington state, is the founding editor of the creative nonfiction project BeyondtheBracelet.com. Sonja Schmid (sschmid@vt.edu) is an assistant professor in Science and Technology Studies at Virginia Tech. “The Little Reactor That Could?” Issues in Science and Technology, http://www.issues.org/27.4/carper.html

Historically, nuclear energy has been entangled in one of the most polarizing debates in this country. Promoters and adversaries of nuclear power alike have accused the other side of oversimplification and exaggeration. For today’s industry, reassuring a wary public and nervous government regulators that small reactors are completely safe might not be the most promising strategy. People may not remember much history, but they usually do remember who let them down before. It would make more sense to admit that nuclear power is an inherently risky technology, with enormous benefits that might justify taking these risks. So instead of framing small reactors as qualitatively different and “passively safe,” why not address the risks involved head-on? This would require that the industry not only invite the public to ask questions, but also that they respond, even—or perhaps especially—when these questions cross preestablished boundaries. Relevant historical experience with small compact reactors in military submarines, for example, should not be off limits, just because information about them has traditionally been classified.

#### PC key

Michael Falcone (writer for ABC News) 1/7, 2013 “Cabinet Shakeup: No Such Thing As A ‘Slam Dunk’ (The Note)” http://abcnews.go.com/blogs/politics/2013/01/cabinet-shakeup-no-such-thing-as-a-slam-dunk-the-note/

But as ABC Chief White House Correspondent Jon Karl notes today, the confirmation of Hagel, a former Republican senator, “will be no slam dunk”: “Senate Democrats tell me there is no guarantee Hagel will win confirmation and that, as of right now, there are enough Democratic Senators with serious concerns about Hagel to put him below 50 votes. The bottom line: He may ultimately win confirmation, but not before a bloody fight in the Senate. On the plus side, Hagel is a decorated Vietnam veteran and a former Republican Senator who’s views on military issues closely match the president’s views. But he has already come under withering criticism from across the political spectrum. Among other things, he has come under fire for controversial comments on Israel (in 2008, he referred to Israel’s US supporters as ‘the Jewish lobby’), his opposition to some sanctions against Iran, and his suggestion, also in 2008, that the U.S. should negotiate with Hamas.” Time Magazine’s Mark Halperin had a similar prediction: “If Hagel has a good confirmation sherpa and performs well in his courtesy calls and at his hearings, he will likely be confirmed. But/and at a pretty high cost. Expect a LOT of people to want to testify against him. And don’t rule out a filibuster of this nomination, which would, obviously, change the math.” http://ti.me/VvwfU0 More on the rough road ahead for Hagel from ABC’s Martha Raddatz on”Good Morning America” today. WATCH: http://abcn.ws/VNTZBZ NOTED! ABC’s RICK KLEIN: It’s getting crowded in here. One consequence of the un-grand bargain is that Washington will be fighting fiscal battles again early this year — then likely later, too. The result is not just a feeling of déjà vu but of suffocation. Republicans and any coalition that wants to slow President Obama’s agenda — on immigration, gun control, energy policy**,** what have you — has the perfect way to do so now, perhaps indefinitely. “None of these issues, I think, will have the kind of priority that spending and debt are going to have over the next two or three months,” Senate Minority Leader Mitch McConnell said on ABC’s “This Week” yesterday. ABC’s AMY WALTER: For all the hand wringing about upcoming fights between the White House and Congress over Chuck Hagel, the debt ceiling and the sequester, a reminder that the two branches were designed to challenge each other. To be sure, this is a frustrating process— and one that has resulted in less than ideal outcomes. Voters say they like the idea of divided government, but they don’t like the reality of it. “THIS WEEK” REWIND: MCCONNELL: THE TAX ISSUE IS FINISHED. As President Obama and Republicans slowly approach the next round of deficit-reduction talks, Senate Minority Leader Mitch McConnell drew a line in the sand, in his interview with ABC’s George Stephanopoulos: no more tax increases. McConnell: “The tax issue is finished, over, completed. That’s behind us. Now the question is, what are we going to do about the biggest problem confronting our country and our future? And that’s our spending addiction. It’s time to confront it. The president surely knows that. I mean, he has mentioned it both publicly and privately. The time to confront it is now.” http://abcn.ws/Xbz4uz HEITKAMP: GUNG-CONTROL PROPOSALS ‘WAY IN EXTREME.’ After The Washington Post reported that Vice President Biden’s working group will press a broad gun-control agenday, newly elected Democratic Sen. Heidi Heitkamp, N.D., told ABC’s George Stephanopoulos those proposals would go to far. Heitkamp: “Let’s start addressing the problem. And to me, one of the issues that I think comes — screams out of this is the issue of mental health and the care for the mentally ill in our country, especially the dangerously mentally ill. And so we need to have a broad discussion before we start talking about gun control. … I think you need to put everything on the table, but what I hear from the administration — and if the Washington Post is to be believed — that’s way — way in extreme of what I think is necessary or even should be talked about. And it’s not going to pass.” GRETA VAN SUSTEREN GOES ON THE RECORD (WITH ABC NEWS): Fox News’ Greta Van Susteren has interviewed some of the biggest names in U.S. politics on her show, “On The Record,” but you’ll never guess who her dream guest dream political guest is. Van Susteren, who appeared on the “This Week” roundtable Sunday, answered viewer questions from Facebook and Twitter for an “All Politics is Social” web exclusive hosted by ABC’s Kaye Foley. About that dream guest, here’s her answer: “Bo, the first dog. I love animals. I’d love to be on Animal Planet. On Animal Planet you aren’t dealing with death and destruction and people fighting with each other all the time. To the extent that Bo is a part of politics, I’d love to interview Bo. Plus, I love the fact that he looks like he’s wearing white knee socks. Bo is my favorite.” WATCH the full interview: http://abcn.ws/13bVdfF THE BUZZ: with ABC’s Chris Good (@c\_good) SCOTUS RETURNS: GAY MARRIAGE, AFFIRMATIVE ACTION, VOTING RIGHTS. The Supreme Court returns to the bench today, and ABC’s Ariane de Vogue reports: The justices will hear two potentially blockbuster cases in March concerning gay marriage. One of the cases–Hollingsworth v. Perry–addresses whether there is a fundamental right to same-sex marriage. The other–Windsor v. United States–deals with the federal law that defines marriage as between a man and a woman. In both cases, the court will hear arguments on potential procedural obstacles that could stop it from getting to the core constitutional questions. The court will also hear a case challenging a key provision of the Voting Rights Act. Section 5 of the law says that certain states with a history of voter discrimination must clear any changes to their election laws with federal officials in Washington. Lawyers for Shelby County, Ala., are challenging the constitutionality of Section 5. The case, called Shelby County v. Holder, will be argued Feb. 27. The day before, the court will hear arguments in Maryland v. King, a case about whether Maryland officials can collect DNA from someone who has been arrested but not convicted of a crime. http://abcn.ws/WD3Fir SANDY AND THE CLIFF: WILL PAUL RYAN’S VOTES HAUNT HIM IN 2016? Paul Ryan voted in favor of the “fiscal cliff” tax deal but against a Hurricane Sandy relief bill that would add $9.7 billion in debt. ABC’s Shushannah Walshe reports on the potential implications for 2016: The two votes four years from now may mean nothing or could haunt Ryan if he decides to run for president in 2016, depending on who is battling for the nomination. The fiscal cliff vote could become an issue, particularly if his opponent is Florida Sen. Marco Rubio who could highlight the fact that Ryan voted for the measure while Rubio voted against it. The Sandy vote could also be resurrected if his rival is New Jersey Gov. Chris Christie who blasted members of his own party this week when Boehner decided not to vote on a $60 billion Sandy relief package after assuring lawmakers from the affected he states he would. … Will Ryan be more vocal on the looming battle to raise the debt ceiling? It will be one to watch. http://abcn.ws/Sb0YZE OBAMA’S VACATION BY THE NUMBERS. With President Obama returning from a nine-day vacation in Hawaii with family and friends, ABC’s Mary Bruce reports: Obama played FIVE rounds of golf with SEVEN different partners, spending roughly THIRTY hours on TWO different courses on Oahu. The president made FIVE early morning trips to the gym at the nearby Marine Base at Kaneohe Bay. … The Obamas ventured out for dinner with friends FOUR times, leaving their Kailua vacation home for gourmet Japanese meals at Nobu and Morimoto … The president interrupted his vacation for SIX days to negotiate the “fiscal cliff” in Washington. All told, he will have spent roughly FORTY hours on Air Force One flying between D.C. and Hawaii. http://abcn.ws/WA0xUx PELOSI: MORE TAXES IN NEXT CLIFF DEAL. The fiscal cliff isn’t quite over, and House Speaker Nancy Pelosi says tax revenues must be on the table as President Obama and congressional Republicans negotiate over how to avert budget sequestration. The Hill’s Mike Lillis reports: “‘In this legislation we had $620 billion, very significant … changing the high-end tax rate to 39.6 percent. But that is not enough on the revenue side,’ Pelosi told CBS’s Bob Schieffer in an interview taped Friday. Without offering many specifics, the California Democrat said she wants to scour the tax code for unnecessary loopholes and ‘unfair’ benefits that help those–either companies or individuals–who don’t need it.” http://bit.ly/WnUi5y CHUCK HAGEL: LET THE SNIPING BEGIN. Rumblings on Capitol Hill, already, are not good. Politico’s Scott Wong and Manu Raju report: “Sen. Lindsey Graham (R-S.C.), an Air Force reservist who serves on the Armed Services Committee that will consider the nod, said Hagel would hold the ‘most antagonistic’ views toward Israel of any defense secretary in U.S. history. … ‘It is a strange signal for the White House to send that they are willing to fight for Hagel but not Rice,’ one Senate Democratic aide said Sunday. ‘Democrats are not currently unified behind Hagel, and it will take some real work by the administration to get them there, if it’s even possible.’ ‘I can’t imagine why [Obama] would choose to burn his political capital on this nomination. For what? There is no constituency for Chuck Hagel,’ one senior GOP aide said. ‘Obama will expend every ounce of political capital he has to get him across the finish line. Dems will hate this.” <http://politi.co/VFMgc7>

#### Hagel reigns in personnel benefits

MacGilis, 1-9

Alec MacGillis, Senior Editor at The New Republic, 1-9-2013, “Can Chuck Hagel Cure The Military’s Health Care Problems,” http://www.tnr.com/blog/plank/111778/can-chuck-hagel-cure-the-militarys-health-care-problem

The Pentagon, to its credit, recognizes that it has a real problem on its hands. At that same Brookings event, the Department of Defense's comptroller, Robert Hale, [lamented](http://www.brookings.edu/events/2013/01/07-defense-spending#ref-id=20120107_keynote) the pressure that rising health care costs are putting on the rest of the military budget, and lamented the difficulty in getting action on this front in Congress. For that is where the real obstacle now lies. Members of both parties are loath to be seen as jacking up out-of-pocket costs for current and former members of the military after a decade of wars whose burdens have been shouldered by a sliver of the American population. It's been easy for groups like the Retired Military Officers Association to exploit that reluctance and make the case against touching Tricare premiums. "What happened was that for the first five years of Tricare, the Clinton administration should’ve raised [the premiums] but didn’t," says Lawrence Korb, a former naval officer and assistant secretary of defense in the Reagan administration, now at the Center for American Progress. "And then after 2001 and the wars and everything, there were guilty feelings over so few of our men and women fighting for us and everyone kept conflating [Tricare costs] with these brave men and women fighting."¶ But a closer look suggests that the moral calculus is not so simple. The primary beneficiaries of the current policy are healthy retired officers: Veterans wounded in battle are in the care of the VA, and many enlisted men are not even covered by Tricare in their post-military years because they leave short of the 20-year tenure required for retirement benefits. The person benefiting most from Tricare's current terms is more likely to be a retired lieutenant colonel pulling down a big paycheck at Lockheed or SAIC than a former sergeant struggling to make a living on his return home from Iraq. And it's not just that -- the rising cost of Tricare is putting budget pressure on the Pentagon's ability to provide care for those who we'd all agree are neediest of all: wounded veterans and service members in theater. There's only so much money to go around, and the more that is spent on retiree care through Tricare, the more the government needs to scrimp in other areas, whether overseas operations or weapons systems or V.A. care.¶ "We’re all in this together," one former Defense official in favor of reforming Tricare told me. "There’s no free lunch -- someone’s paying for this bill, and that someone is the taxpayer." He added, "I would remind the larger beneficiary population that in some sense the most crucial part of this system is the people serving the country’s uniform today, and when they come home we want to make sure the very best care is available for them. If those who have already departed the service take too large a share of the total ... what will get shortchanged in that situation is the [care] for those that are serving today. Is that what you really want? Shouldn’t you be willing to say that's who we should put first?"¶ He noted that this argument has been made on the Hill, but it "did not GAIN traction. People nod their heads and understand but were unwilling to act." The two most recent Pentagon chiefs, Bob Gates and Leon Panetta, [proposed increases](http://www.nytimes.com/2010/11/29/us/29tricare.html) in Tricare premiums, but made [little headway](http://articles.washingtonpost.com/2011-05-03/politics/35232502_1_tricare-premiums-service-members-health-costs) in Congress, which agreed to only the minimal premium bump.¶ Korb, though, sees reason for optimism in the person of Hagel, the former Nebraska senator Obama has nominated to run the Pentagon, over widespread opposition. Not only is Hagel seemingly more determined than his predecessors to get the military budget under control, as a former enlisted man who was wounded in Vietnam, he's in a good position to make the case for spending health care dollars on those who need them most. "If Hagel gets confirmed, we have a much better chance" of reforming Tricare, says Korb.

#### Turns case on a great global scale

Bennett, 2012

John T. Bennett covers national security and foreign policy for U.S. News & World Report, Study Warns Cost of U.S. Troops Unsustainable, http://www.usnews.com/news/blogs/dotmil/2012/07/12/study-warns-cost-of-us-troops-is-unsustainable

Increasingly costly benefits for U.S. troops, if left unchecked, would force the military to shed so many war fighters that it would struggle to perform even its simplest missions.¶ The massive cost of America's all-volunteer military is unsustainable, states a blunt report released by a Washington, D.C.-based think tank Thursday.¶ "Over the past decade, the cost per person in the active duty force increased by 46 percent," the Center for Strategic and Budgetary Studies concludes.¶ When those rising personnel bills are placed in context of the entire Defense Department spending picture, analysts arrived at a startling conclusion.¶ "If personnel costs continue growing at that rate and the overall defense budget remains flat with inflation, military personnel costs will consume the entire defense budget by 2039," CSBA finds.¶ The military's personnel system and compensation scheme were installed before Washington shifted to an all-volunteer force in the early 1970s. Despite warnings about costs back then, a major overhaul never has been conducted—largely due to political concerns about appearances of disrespecting members of the armed services.¶ [[Photo Gallery: Sights of Summer](http://www.usnews.com/photos/sights-of-summer).]¶ The Pentagon spends about 75 percent of its $500 billion budget on personnel costs.¶ Unless executive branch officials and lawmakers put aside such fears relatively soon, CSBA study author Todd Harrison says Pentagon leaders will have few options but to cut large numbers of forces to save money.¶ The result?¶ "You would end up with a military too small for even basic missions," Harrison told a standing room-only audience in downtown Washington on Thursday. "So something's got to give."¶ Talk of cost-cutting changes to the Pentagon's so-called "people programs" began bubbling around 2008. That's when the first signs appeared that the post-9/11 military spending spree, as former Defense Secretary Robert Gates calls it, was ending.¶ Another think tank, the Bipartisan Policy Center, issued its own report last month that concludes the Pentagon soon will spend more on health care and other benefits for former military personnel than on troops in uniform today.¶ But no substantive changes to bring down costs—other than plans to shrink the Army and Marine Corps to around pre-9/11 levels—have been made.¶ The talk about military personnel reform comes as the Pentagon faces shrinking annual budgets. Some analysts and senior defense officials say if the costs of troops' pay, retirement and healthcare aren't pared soon, the Pentagon will run out of monies to buy combat hardware.

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#### Lack of agent spec is a voter—

#### Destroys topic education and turns solvency

Valentine 10 Scott Victor Valentine - Lee Kuan Yew School of Public Policy, National University of Singapore, Singapore, “Canada’s constitutional separation of (wind) power” Energy Policy, Volume 38, Issue 4, April 2010,

http://www.sciencedirect.com/science/article/pii/S0301421509009227

Should policymakers facilitate renewable energy capacity development through distributive policies (i.e. subsidies), regulatory policies (i.e. CO2 emission caps), redistributive policies (i.e. carbon taxes) or constituent policies (i.e. green energy campaigns) (Lowi, 1972)? A preponderance of research has gone into addressing this question from various conceptual perspectives, which include popular themes such as comparing the efficacy of various policy instruments (cf. Blakeway and White, 2005; EWEA, 2005; Menza and Vachona, 2006; cf. Lipp, 2007), championing the efficacy of one specific instrument (cf. Sorrell and Sijm, 2003; cf. Mathews, 2008), assessing the impact that socio-economic dynamics have on the selection or design of policy instruments (cf. Maruyama et al., 2007; cf. Huang and Wu, 2009), investigating policy instrument selection in stakeholder networks (cf. Rowlands, 2007; cf. Mander, 2008), investigating hurdles to effective policy instruments implementation (cf. Alvarez-Farizo and Hanley, 2002), and examining challenges associated with evaluating policy instrument efficacy (cf. Mallon, 2006; cf. Vine, 2008).

Despite the proliferation of studies on policy instruments in the renewable energy policy field, there are no prominent examples of studies which investigate the impact that the federal form of government has on strategic selection of policy instruments. Federal government systems are characterized by power-sharing between the central authority and the regions comprising the federation. For federal policymakers, the manner in which power is divided can pose significant policy-making problems (Thorlakson, 2003). Specifically, federal attempts to apply coercive policy instruments in policy areas of regional or concurrent (shared) authority can generate political, legal or operational resistance by regional authorities. Even when developing policy for areas under federal jurisdiction, regional authorities have to avail their various “thrust and riposte” tactics to undermine the efficacy of disagreeable federal policies (Braun et al., 2002). Given that there are 24 nations with a federal government structure (including the major economies of the United States, Germany, Canada, Australia, Russia, India, Spain, Brazil and Mexico), a formal enquiry into the impact that federal structure has on renewable energy policy instrument development is merited.

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#### The US wants to require ENR restrictions in nuclear negotiations, but perceived lack of industry leadership limits our position

Mark **Hibbs 12**, SENIOR ASSOCIATE, NUCLEAR POLICY PROGRAM, Carnegie Endowment, "Negotiating Nuclear Cooperation Agreements," NUCLEAR ENERGY BRIEF, AUGUST 7, 2012 http://carnegieendowment.org/2012/08/07/negotiating-nuclear-cooperation-agreements/d98z-http://carnegieendowment.org/2012/08/07/negotiating-nuclear-cooperation-agreements/d98z

\*ENR = uranium enrichment and spent fuel reprocessing

The United States is currently negotiating bilateral agreements for peaceful nuclear cooperation under Section 123 of the U.S. Atomic Energy Act—so-called 123 agreements—with Jordan, Saudi Arabia, South Korea, and Vietnam. At some point—thus far no decision has been taken when—the United States will begin a fifth such negotiation, with Taiwan.¶ The negotiations with South Korea and Taiwan are to renew agreements set to expire in 2014, while the others are new. All five states want to deploy nuclear power reactors for electricity generation in the coming years and they seek benefits that would accrue from a formal legal framework for conducting its nuclear trade and diplomacy with the United States.¶ Although the Atomic Energy Act establishes criteria that 123 agreements must meet in order to conform to U.S. law without special Congressional consideration, for all of these negotiations to succeed the language and terms written into the five agreements will have to differ quite significantly. Why? Because the interest calculus and leverage balance of the two parties in each case won’t be the same.¶ Progress in negotiating these agreements has been held up because of a contentious two-year interagency debate in the United States over how to proceed in trying to limit the spread of uranium enrichment and spent fuel reprocessing (so-called ENR) capabilities worldwide. In 2009, the United Arab Emirates (UAE) concluded a 123 agreement that said it would not “engage in activities within its territory” for ENR. The UAE agreement also indicated that the no-ENR provision was to be included in future 123 agreements for countries in the Middle East.¶ Some administration officials, supported by lawmakers, sought to universalize the UAE no-ENR provision as a “gold standard” for all future agreements, but others preferred instead to apply it on a limited case-by-case basis.¶ Since 2004, when the Bush administration proposed that ENR technologies be restricted to the few states currently having them—which includes the United States—many countries have objected that this would violate their “rights” to peaceful nuclear development, expressed in both the International Atomic Energy Agency (IAEA) statute and in Article IV of the Nuclear Non-Proliferation Treaty.¶ The United States sought to codify this ban in nuclear trade guidelines upheld by the 46-member Nuclear Suppliers Group, but had to settle for a criteria-based approach adopted by the group in June 2011. Last fall, the U.S. House of Representatives introduced legislation that would set forth a blanket requirement that countries entering into nuclear cooperation with the United States forego ENR.¶ But **neither Congress nor the administration at a senior level has set a firm policy course on what should be required in future 123 agreements, leaving it up to negotiators themselves** to follow recommendations arising from lower-level internal deliberations. In practice, this means that there has been a strong difference of views between the State Department, which at high levels supports making the “gold standard” a requirement in all 123 agreements, and the Department of Energy, which favors a more differentiated approach also favored by the U.S. nuclear industry.¶ Currently, there is an interagency understanding that the State Department will aim to negotiate no-ENR provisions into nearly all future 123 agreements and that any exceptions to the no-ENR outcome must be jointly authorized by Secretary of State Hillary Clinton and Secretary of Energy Steven Chu.¶ Recent media accounts suggest that Taiwan has “volunteered” to adopt the “gold standard” and that one or more advocates at the State Department behind the scenes then pushed Taiwan to the top of the list of 123 agreements to be negotiated in order to quickly establish the “gold standard” as a precedent for all future agreements. But issues about the timing of the pending Taiwan negotiation were in fact triggered by a State Department staffer’s travel schedule and were unrelated to any policy discussion.¶ Taiwan and the United States have understood from the very outset that because the United States has immense leverage over Taiwan, a four decade-old policy of no enrichment and reprocessing in Taiwan enforced by the United States will be enshrined in the new agreement.¶ A new Taiwan agreement will not serve as a precedent for any of the agreements the United States is currently negotiating with other states because the United States enjoys far less leverage, and may have overriding policy goals, in these cases.¶ Vietnamese officials, for example, have informed their U.S. counterparts that they don’t want to negotiate a nuclear cooperation agreement on the basis that Vietnam must forfeit its ENR “rights.” Vietnam has little incentive to do so. While Taiwan’s nuclear infrastructure was set up decades ago hand-in-hand with U.S. industry, Vietnam will build reactors with the help of Russia and Japan and it doesn’t need an agreement with the United States to do that. Russia has agreed to supply fresh nuclear fuel to Vietnam and thereafter to take back and reprocess in Russia the spent fuel from reactors in Vietnam.¶ Hanoi has spelled out that it has no interest in setting up enrichment or reprocessing plants, and U.S. officials on the ground appear unworried that Vietnam will try to develop sensitive nuclear fuel cycle capabilities—a consideration that may matter should U.S. negotiators eventually ask Chu and Clinton to make an exception to the no-ENR policy for Vietnam.¶ Saudi Arabia might be a different story. While Vietnam has decided to bet its chips on nuclear energy partnerships with Russian and Japanese industry, Riyadh has so far not identified who its future industrial collaborators will be, and it is considering possible linkups with American firms. That would not be possible without a 123 agreement.¶ The Saudi government is also aware that should Riyadh not assure Washington that it won’t build sensitive enrichment and reprocessing installations, U.S. lawmakers, concerned about the security of Israel, would almost certainly forbid the United States to cooperate with Saudi Arabia on those terms. What’s more, like neighboring UAE, Saudi Arabia may want to accommodate the United States in the interest of its bilateral defense arrangements, especially in view of its perceived threat from Iran.¶ The U.S. **State Department is highly aware of the** differences in the calculus of each of its prospective nuclear trading partners and the varying **extent of U.S. leverage** in these cases. Before Washington began broaching nuclear cooperation with Vietnam and Saudi Arabia, it had been negotiating bilateral nuclear agreements with South Korea and Jordan.¶ South Korea may become one of the exceptions made to a no-ENR outcome, as Seoul is hardly inclined to abandon its interest to enrich and reprocess. To the contrary, South Korea argues that Washington should afford it the same freedom to reprocess its growing inventory of spent fuel to minimize nuclear waste as the United States provided Japan when its 123 agreement was renegotiated in the 1980s.¶ The United States has long argued that a 1991 bilateral agreement between South Korea and North Korea, which commits both to renounce ENR, stands in the way. But South Korean officials argue that the bilateral agreement is null and void in the wake of North Korea’s revelation that it is now enriching uranium outside of IAEA safeguards, not to mention that it also produced plutonium outside of safeguards and used it in two nuclear explosions in 2006 and 2009. Officials argue that the size of South Korea’s ever-expanding nuclear program—the country now has 23 power reactors—will soon justify the establishment of a domestic uranium enrichment capacity.¶ With the exception of the ENR issue, negotiation of a 123 agreement with Jordan is virtually complete. But Jordan, like Vietnam, will likely build power reactors in cooperation with non-U.S. vendors (in this case French or Canadian firms) and Jordan has informed the United States it will not negotiate away its generic “right” to enrich uranium or reprocess spent fuel.¶ Amman’s refusal to legally forfeit its ENR options doesn’t have to mean that Jordan can’t accommodate the United States on this point if both sides really want a nuclear cooperation agreement. Instead of forcing Jordan to legally commit itself not to enrich or reprocess, the U.S.-Jordan agreement might include a declaration by Jordan—in a preamble or in a side letter—to the effect that Jordan will not set up sensitive fuel cycle infrastructure because it is not justified by the anticipated requirements of Jordan’s nuclear power program.¶ Such a declaration may or may not be legally binding, but it would be politically robust in the context of a bilateral agreement with the United States. Jordan would retain its “right” to develop or acquire reprocessing and enrichment capabilities, but it could agree not to exercise this option. Jordan and the United States might agree to periodically reassess Jordan’s nuclear fuel supply requirements.¶ A similar approach was successfully taken by Canada in a somewhat different context concerning its interest in enriching uranium. When the United States proposed to the Nuclear Suppliers Group in 2004 that transfers of ENR items to newcomers be banned, Canada objected. Unlike Vietnam, but like Jordan, Canada has domestic uranium reserves (indeed it’s currently the world’s leading uranium exporter) and, like Jordan, Canada does not want to forfeit its option to add value by processing the uranium into commercial power reactor fuel in coming years. In 2008, Ottawa overcame an impasse with the United States on this issue by voluntarily suspending its freedom to import enrichment technology for a limited period of time pending successful negotiation of global ENR trade rules.¶ U.S. resolve to include a no-ENR pledge in the body of new bilateral agreements will be seen by some countries as arrogant and unacceptable. Incorporating ENR terms into side-letters or preambles may be less offensive. That approach would also more easily facilitate including reciprocal commitments by the United States into its 123 bargains with foreign countries. These might include guaranteeing nuclear fuel supply through participation in the U.S. fuel bank, facilitating the country’s access to other back-up sources of nuclear fuel, and, in the future, perhaps even taking back U.S.-origin spent fuel.¶ The outcome of any negotiation for a bilateral nuclear cooperation agreement **will depend on the leverage both sides bring** to the table. When the United States negotiated most of the 22 such agreements in force today, it was the world’s leading provider of nuclear technology, equipment, and fuel. As the examples of Jordan and Vietnam show, unlike half a century ago, nuclear newcomers today don’t need to buy American.¶ The vendor field is populated by firms in Argentina, Australia, Canada, the European Union, Japan, Kazakhstan, Namibia, Niger, Russia, and South Korea, and in the future they will be joined by others in China and India. Governments in these countries do not seek to establish a no-ENR requirement as a condition for foreign nuclear cooperation. Some of them, Australia and Canada for example, have strong nonproliferation track records. Countries now seeking to form foreign industrial partnerships to set up nuclear power programs have numerous options and they will favor arrangements that provide them the most freedom and flexibility.¶ Equity in international nuclear affairs matters. By negotiating with its partners voluntary political agreements, including side benefits to limit the application of sensitive technologies, instead of trying to legally compel them to make concessions that are politically onerous, the United States can serve its nonproliferation and security interests while avoiding the challenge to U.S. credibility that would follow from rigid application of a one-size-fits-all policy.¶ The United States should show nonproliferation leadership by generally discouraging countries without enrichment and reprocessing capabilities from embarking in this direction. But negotiators need policy guidelines that provide for flexibility and encourage them to create incentives to get desired results. To some extent, the **current policy** may be informed by the insight that trying to negotiate no-ENR terms into the operative text of an agreement may fail, and that other approaches may be more productive. It also **reflects the reality that U.S. leverage on nuclear trade is declining**.

#### DOD SMRs reverse this

**Andres & Breetz 11** (Richard B. Andres is Professor of National Security Strategy at the National War College and a Senior fellow and energy and environmental Security and Policy Chair in the Center for Strategic research, institute for national Strategic Studies, at the national Defense University. Hanna L. Breetz is a doctoral candidate in the Department of Political Science at the Massachusetts institute of technology. February 2011, “Small nuclear reactors for military installations: capabilities, costs, and technological implications,” http://www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf)

The “Valley of Death.” Given the promise that small reactors hold for military installations and mobility, DOD has a compelling interest in ensuring that they make the leap from paper to production. However, if DOD does not provide **an initial demonstration and market**, there is a chance that the U.S. small reactor industry may never get off the ground. The leap from the laboratory to the marketplace is so difficult to bridge that it is widely referred to as the “**Valley of Death**.” Many promising technologies are never commercialized due to a variety of market failures— including technical and financial uncertainties, information asymmetries, capital market imperfections, transaction costs, and environmental and security externalities—that impede financing and early adoption and can lock innovative technologies out of the marketplace. 28 In such cases, the Government can help a worthy technology to bridge the Valley of Death by accepting the first mover costs and demonstrating the technology’s scientific and economic viability. 29

Historically, nuclear power has been “the most clear-cut example . . . of an important general-purpose technology that in the absence of military and defense-related procurement would not have been developed at all.” 30 Government involvement is likely to be crucial for innovative, next-generation nuclear technology as well. Despite the widespread revival of interest in nuclear energy, Daniel Ingersoll has argued that radically innovative designs face an uphill battle, as “the high capital cost of nuclear plants and the painful lessons learned during the first nuclear era have created a prevailing fear of first-of-a-kind designs.” 31 In addition, Massachusetts Institute of Technology reports on the Future of Nuclear Power called for the Government to provide modest “first mover” assistance to the private sector due to several barriers that have hindered the nuclear renaissance, such as securing high up-front costs of site-banking, gaining NRC certification for new technologies, and demonstrating technical viability.32

#### The impact is Korea relations

Seongho **Sheen 11**, associate professor at the Graduate School of International Studies, Seoul National University, Nuclear Sovereignty versus Nuclear Security: Renewing the ROK-U.S. Atomic Energy Agreement, The Korean Journal of Defense Analysis, Vol. 23, No. 2, June 2011, 273–288, http://www.brookings.edu/~~/media/research/files/papers/2011/8/nuclear%20korea%20sheen/08\_nuclear\_korea\_sheen

The most important challenge for Washington and Seoul is to prevent the issue from becoming a **test-case for the alliance**. During their summit meeting in June 2009, President Obama and President Lee promised close cooperation regarding the peaceful use of nuclear energy, among others. 35 Yet, any hint of U.S. objections to South Korea’s demand for “peaceful” nuclear sovereignty could **send the current amicable alliance relationship into turmoil**, as shown during the fierce anti-American rallies in Seoul over the U.S. beef import issue in 2008. Many South Koreans often compare the ROK-U.S. revision of the atomic agreement with the U.S.-Japan revision in the 1980s. In its renegotiation in the late 1980s of its nuclear agreement with the United States, Japan acquired an advanced agreement on full-scale spent fuel reprocessing and uranium enrichment. Japan has become the only non-nuclear weapons state with a full reprocessing capability.¶ 36 Washington believed that Japan posed no proliferation risk given its excellent nonproliferation credentials; however, many in South Korea think that they deserve the same right. Washington seems to have difficulty in giving the same benefit of doubt to South Korea when it comes to sensitive nuclear technology. They may say South Korea is different from Japan, which already had reprocessing and enrichment plants under the existing agreement that was agreed to before North Korea’s nuclear program was revealed.¶ Yet, it will be difficult for the United States to simply ignore South Korea’s demand and its growing nuclear capacity because South Korea, along with Japan, is one of the most important U.S. allies in Asia. It will be a challenge for the United States to balance its bilateral alliance management with Seoul and its commitment to global nonproliferation efforts. An editorial in the Chosun Ilbo, a prominent Korean newspaper, warned the ROK-U.S. alliance could, “come under strain if Washington stubbornly insists on blocking South Korea from reprocessing.” 37¶ For many Koreans the negotiation could be another **test case for the U.S. commitment to the alliance after the very controversial KORUS FTA** negotiations. The U.S. attitude could be regarded as another referendum on America’s sincerity and respect for South Korea’s status as a key ally. The comparison with Japan would provide a compelling case for both critics and supporters of the alliance in Korea. In addition, the 2008 Bush administration’s decision to award another long-term consent to India for reprocessing nuclear waste will make it more difficult for U.S. negotiators to persuade Seoul to forgo the same right.¶ 38 How minor they might be, some strong nationalists may even argue for the need for South Korea to have its own nuclear weapons program. Recently, Kim Dae-Joong, a prominent Korean conservative journalist called for a South Korean nuclear weapons program. 39 In addition, some members of the National Assembly argued for having a “conditional” nuclear option until the complete resolution of North Korea’s nuclear issue. 40

#### Extinction

Snyder et al 10 – director of the Center for U.S.-Korea Policy and senior associate of Washington programs in the International Relations program of The Asia Foundation (Charles L. Pitchard and John H. Tilleli Jr. “US Policy Toward the Korean Peninsula” ww.cfr.org/content/publications/attachments/Korean\_PeninsulaTFR64.pdf)

Strong alliance coordination with South Korea has ensured peninsu­lar stability for more than five decades, initially in response to North Korea’s conventional threat and now in promoting a coordinated response to North Korea’s efforts to develop nuclear weapons. While successfully deterring North Korea, the alliance also provided the polit­ical stability necessary for South Korea’s economic and political trans­formation into a leading market economy with a vibrant democratic political system. South Korea’s democratic transformation has allowed a more robust and enduring partnership with the United States that also applies to a growing list of regional and global security, economic, and political issues beyond North Korea. Presidents Obama and Lee recognized the potential for such coop­eration through the adoption of a Joint Vision Statement at their White House meeting in June 2oo9.43 Citing shared values between the two countries, the statement outlines an agenda for broadened global coop­eration on peacekeeping, postconflict stabilization, and development assistance, as well as for addressing a wide range of common challenges to human security, including “terrorism, proliferation of weapons of mass destruction, piracy, organized crime and narcotics, climate change, poverty, infringement on human rights, energy security, and epidemic disease.”44 The Joint Vision Statement also underscores U.S. commitments to defend South Korea from North Korea’s nuclear challenge by providing extended deterrence to protect South Korea—that is, a pledge to use its nuclear arsenal in response to any nuclear attack on South Korea—and to transition the role of U.S. forces in South Korea from a leading to a supporting role. It also pledges to strengthen bilateral economic, trade, and investment ties through ratification of the Korea-U.S. Free Trade Agreement (KORUS FTA). The Task Force believes that the Joint Vision Statement consti­tutes a valuable foundation for U.S.-ROK cooperation and should be implemented fully. The Korean decision in late ŒŸŸ9 to provide a Provincial Reconstruction U.S. Policy Toward the Korea Peninsula Team (PRT) to Afghanistan is a welcome contribution to the global security issue at the top of the Obama admin­istration’s agenda, and South Korea’s role as host and chair of the Group of Twenty (Gro) summit in ŒŸŠŸ and the ŒŸŠŒ nuclear security summit is a basis on which the United States and South Korea can build cooperation to manage recovery from the global financial crisis. The role of the alliance as a platform for constructive South Korean regional diplomacy is likely to become more important in the context of rising Chinese influence. When paired with the U.S.-Japan alliance, which is based on a complementary set of values and interests, the U.S.-led alliance system in Northeast Asia is a cornerstone for regional stability and provides a framework for promoting East Asian security cooperation.

### DA

#### Current space policy prevents conflict through cooperation and restraint

**Huntley 11** – senior lecturer in the National Security Affairs department at the Naval Postgraduate School in Monterey, California (Wade, “The 2011 U.S. National Space Security Policy: Engagement as a Work in Progress”, Disarmament Times, Spring, http://disarm.igc.org/index.php?option=com\_content&view=article&id=429:the-2011-us-national-space-security-policy-engagement-as-a-work-in-progress&catid=154:disarmament-times-spring-2011&Itemid=2)

This background is essential for appreciating how the space policies of the Obama administration are beginning to genuinely break new trails. The U.S. National Space Policy issued in June 2010 has been widely recognized for its cooperative and multilateral tone, including as explicit near-term goals the expansion of international cooperation on all activities and pursuing international as well as national measures to enhance space stability. Particularly notable are the document’s emphasis on orienting U.S. “leadership” toward fostering international cooperation, and its references, in its concluding section, to cooperation with other states and non-state actors in the pursuit of national security space objectives.3

Less broadly noticed was this policy’s clarity and coherence in articulating a vision for U.S. space activities on its own terms.  The document is organized around core principles, subsidiary goals and implementing guidelines that exceed its predecessors in delineating a longer-term direction for U.S. space policy that is integrated with, rather than derivative of, broader U.S. global aims.4 The policy also was generated and issued far earlier in the tenure of the administration than either of its predecessors, indicating an increased prioritization of attention to space policy at higher levels of policy-making.

To some degree, a turn toward multilateral cooperation in U.S. space policy was to be expected. China’s 2007 anti-satellite weapon (ASAT) test and the 2009 Iridium-Cosmos collision increased awareness of the challenge of space debris and the need for better global information sharing on space situational awareness (SSA).5  Also, new budget realities and **unpromising tech**nological developments have scaled back ambitions in some quarters for solving U.S. space security concerns with new independent capabilities. Finally, the Obama administration has pursued a more cooperative disposition across a wide range of global policy challenges, from Iranian nuclear ambitions to global climate change. But the improved clarity of vision in the 2010 Space Policy suggests that the emphasis on fostering global cooperation on space-related activities is more grounded in deliberate foresight than sailing the prevailing political winds.

The 2011 National Security Space Strategy, released February 4, is best interpreted against this background of the Obama administration’s turn toward both greater international space cooperation and greater attention to space policy in general. This first-of-its-kind strategic statement culminates a congressionally mandated space posture review.6 The initial section portraying the strategic environment to which U.S. security policy must be responsive highlights the growing problems of space debris, orbital congestion and coordination among a growing number of space actors — not state-based security threats per se.  The Security Space Strategy features the objective of a “stable space environment in which nations exercise shared responsibility.”7 Specific provisions intended to implement this strategy, relevant to the preceding observations, include:8

• The strategy presents a full section on “Partnering with Responsible Nations, International Organizations, and Commercial Firms.” This category is not wholly multilateral in the traditional sense, displaying a symbiosis of alliance-building and collective cooperation not always carefully distinguished; i.e., “The United States will lead in building coalitions of like-minded space-faring nations and, where appropriate, work with international institutions to do so.”

• The strategy intends to “encourage responsible behavior in space and lead by the power of example,” a significant observation given the tendency of U.S. policy-makers (as noted above) not to expect quid pro quo responses to cooperative gestures. Also, the strategy states the U.S. “will support development of data standards, best practices, **transparency** and confidence-building measures, and *norms of behavior for responsible space operations*.” [italics added] In the context of the section on “Preventing and Deterring Aggression,” the strategy similarly intends to “support diplomatic efforts to promote norms of responsible behavior in space” as well as “pursue international partnerships that encourage potential adversary restraint,” along with other measures.  This emphasis on norm-building and the role of example suggests a near-term endorsement of the development of “codes of conduct” for space activities (such as the recently revised European Union Code of Conduct, discussed below), whether or not such concord leads to more formal arms control arrangements in the longer-term.

• The Department of Defense is directed to “foster cooperative SSA relationships,” and to “expand provision of safety of flight services to U.S. Government agencies, other nations, and commercial firms.” Greater SSA information sharing has been a key suggestion for fostering international cooperation; the U.S. possesses globally superior SSA capabilities, but restricts the sharing of this information on the basis of national security concerns.9 Hence, this nominal commitment is significant in its own right.

• The strategy commits to reforming export controls. “In particular, as new opportunities arise for international collaboration, a revised export control system will better enable the domestic firms competing for these contracts.” As noted above, the oppressive impact of current U.S. export controls not only impinges on U.S. commercial space actors but also epitomizes the high degree to which U.S. policy has subsumed commercial and civil interests to national security concerns. The strategy appears to acknowledge this connection and commit to remedy it.

• The most assertive passages of the statement are moderated with community-building intent. For example, the strategy’s section on “Preventing and Deterring Aggression” concludes that the U.S. “will retain the right and capabilities to respond in self-defense, should deterrence fail,” but immediately adds that the U.S. “will use force in a manner that is consistent with longstanding principles of international law, treaties to which the United States is a party, and the inherent right of self defense.”

• The concluding and most conflict-oriented section of the strategy opens by noting that “some actors may still believe counterspace actions could provide military advantage.” Counterspace capabilities, unarticulated in the document, include ASATs, ground-based directed energy weapons and satellite transmission jamming. Deputy Assistant Secretary of Defense for Space Policy Gregory Schulte explained at the strategy’s rollout that China is a principal concern in this regard, but so is the proliferation of these technologies: “If Ethiopia can jam a commercial satellite, you have to worry what others can do.”10  This section of the strategy does not, however, call for maintaining options to develop complementary space conflict capabilities.

Rather, the strategy asserts that the U.S. “must be prepared to ‘fight through’ a degraded environment,” and identifies “resilience” and “space protection” as the key criteria.

The preceding survey of elements of the 2011 National Security Space Strategy is deliberately selective, highlighting those elements expressing consistency with the 2010 National Space Policy’s bend toward fostering greater international collaboration. Perhaps as **striking** as the prevalence of such passages, however, **is the** **absence of** expressed **intention — even** couched **in hedging language — to** sustain or **expand** the kind of **independent** **space-based military capabilities** that were the centerpiece of the prior administration’s aims (if not its accomplishments). Again, to some extent this turn in tone is overdetermined by extenuating global circumstances. But one must still be struck by the degree to which developments such as the Chinese ASAT test have not ignited the kind of response one might have anticipated only a few short years after Donald Rumsfeld’s notorious warning of a “space Pearl Harbor.”11

The most immediate significance of the National Security Space Strategy is likely the signals its sends concerning U.S. policy toward the recently revised European Union Code of Conduct.12  The strategy did not explicitly endorse this EU initiative, but Mr. Schulte, at the February 4 presentation of the strategy, highlighted the initiative “as a potential way” to promote “transparency and confidence-building measures, which tend to be voluntary as opposed to legally binding.” A week earlier, Rose Gottemoeller, Assistant Secretary of State for Arms Control, Verification and Compliance, stated at the Conference on Disarmament that the administration was nearing a decision on whether the U.S. would sign on to the code, and what modifications might be required in order to do so.13 As U.S. interest in the Code of Conduct has increased, debates over its provisions and its relationship to the Outer Space Treaty have intensified.

These policy movements toward multilateral engagement and commitment to behavioral standards (even if non-binding) mark a sharp departure from the stiff resistance to curtailing U.S. “freedom of action” in the previous administration, and have accordingly generated resistance from congressional opponents on just those terms. Prior to the release of the National Security Space Strategy, a group of 37 Republican senators led by Arizona Senator Jon Kyl issued a letter to Secretary of State Hillary Rodham Clinton expressing concern over a potential multilateral commitment that might limit development and/or deployment of space-based missile defense interceptors and ASAT-defeating systems.14  Critics also decried the strategy’s emphasis on “the old fallacious assumption that the power of example will prevent adversaries from doing the United States harm,” and endorsed maintaining the goal of U.S. retention of a “dominant position in military and intelligence space capabilities.”15 In fact, the administration’s warming toward normative commitments in general — and the EU Code of Conduct in particular — are in part intended to forestall pressure for more formal and binding measures that would definitively cut off the “hedge” of unilateral U.S. weapons development options.16 The balance of U.S. debate may have shifted toward greater international cooperation, but the terms of the debate remain the same.

In sum, the National Security Space Strategy appears to mark not only a swing in U.S. policy toward greater global engagement but also, and more importantly, a step toward greater long-term coherence in thinking concerning the core goals of U.S. space activities. Even supporters of the general directions of the strategy noted its more-than-expected breadth of thought.17 But if this reading is sound, the strategy is still but one step on a long road, and ongoing debates over the role of U.S. space policy vis-à-vis broader national security interests will insure that road is bumpy. Suggesting such limitations, Mr. Schulte acknowledged that the classified version of the strategy is only four pages longer than the released version, indicating that more specific guidelines for military implementation of the strategy remain to be developed.18 Many devils may lurk in these details.

#### The plan causes space weaponization

Maybury 12 Chief Scientist-USAF, “Energy Horizons: United States Air Force Energy S&T Vision 2011-2026,” 1/31, http://www.fas.org/irp/doddir/usaf/energy.pdf

Space is the ―ultimate high ground, providing access to every part of the globe, including denied areas. Space also has the unique characteristic that once space assets reach space, they require comparatively small amounts of energy to perform their mission, much of which is renewable. This simple characterization belies the complexity of the broader space enterprise. The bigger space energy picture must encompass the energy required to maintain and operate the launch ranges, the energy consumed during the launch of space assets, the energy generated and used in space, the energy consumed in satellite control stations, and the energy consumed in data ingest and processing centers. A comprehensive space energy strategy that addresses this full spectrum promises to enhance the resiliency, sustainability, and affordability of future space systems and operations through reduced consumption, increased energy supply, and cultural change. In the near-term, there should be an emphasis on lowering ground facilities and systems energy consumption, while continuing S&T investments for long-term assured energy advantage. The focus on ground facilities should include launch ranges, world-wide satellite control facilities, as well as the substantial data centers required to process and disseminate data to warfighters. In the longer term it may be possible to broaden the set of missions to be performed from space in an energy-efficient manner. This would require significant advances in S&T related to space-borne energy generation and storage technologies. In the mid- and long-term, substantial energy savings may be achieved through commonality in ground systems, efficient operations of those ground systems, as well as expanding the use of renewable energy resources. 3.1 Space Domain Strategic Context **On-orbit assets continue to be among the highest demand** and lowest density assets in the Air Force inventory. They consistently and effectively provide unique capability to the community. These assets are constrained, not just by the size of the payloads they carry, but also by their capability. Their austere operational environment coupled with current technology constraints means these systems regularly are required to operate long past their projected life. S&T that increases energy production, storage, and utilization of on-orbit assets can both provide longer life systems or increase capability value for the Air Force. In contrast to the air domain, assets in the space portfolio do not use traditional aviation fuels for mobility (airlift and air refueling). Indeed, once space assets are placed in orbit, with the very small exception of on-board consumables (to include propulsion for satellite maneuverability), only energy for the associated ground facilities and systems is required to maintain and operate them. Although there is an energy cost in getting systems to space, it is relatively small compared to the energy costs of the ground infrastructure. Therefore, in the near-term, investments in S&T that reduce the energy costs of space systems should focus primarily on reducing the energy costs of the associated ground facilities and systems. Nonetheless, there are promising S&T projects, such as the Reusable Booster System (RBS) and revolutionary small launch vehicles, that may substantially reduce the cost to orbit by applying lessons learned from the commercial aircraft industry to the RBS. For example, reuse may dramatically reduce manufacturing costs while simultaneously permitting much faster turnaround times. However, the full implications of reusable launch vehicles on energy consumption are not yet fully understood. The reusable components of RBS must be rocketed or jetted back to the launch base, resulting in greater use of energy for every launch. The energy impact of RBS requires detailed study. Additional potentially large energy cost savings could be achieved by employing other technologies emphasized in Technology Horizons, including fractionated, composable, and networked space systems. Much smaller systems that may perform the same functions as larger systems offer the possibility of substantially lowering launch costs and reducing on-orbit energy use. On the other hand, launching larger constellations of smaller satellites in low earth orbit may require more energy and use less efficient small launch vehicles. The total energy picture associated with the use of small, fractionated satellites requires careful analysis. Technology Horizons also advocated autonomous real-time, cross-domain, assured and trusted Space Situational Awareness (SSA). While autonomy can be used to save energy and cost for virtually any space mission, automating heavily human-directed SSA can potentially save large energy costs by reducing the presence of human interaction and, at the same time, increasing responsiveness. Figure 3.1 visually emphasizes that the overwhelming share of energy use for space domain operations is in terrestrial facilities and systems. Of the energy consumed for Air Force Space Command (AFSPC) missions, 97.2% is used by terrestrial facilities, 1.8% is used for ground vehicle transportation, and an estimated 1% is used for rocket launches. The commercial space sector has taken significantly different approaches on the ground infrastructure. Commercial space systems are operated with smaller facilities, small crews, and even autonomously. AFSPC has considered base closures to save significant costs; another solution, either in concert with base closures or by itself, is to establish an aggressive program to replace local power generation with renewable technologies. This would directly support the Air Force Energy Plan goals in the near-term, while also supporting assured sources of supply and cost reduction goals. Efforts are already underway to create more energy efficient ground assets using information from the cyber and infrastructure elements of Energy Horizons. A key opportunity is energy cost reduction for terrestrial radar and heating, ventilation, and air conditioning (HVAC) systems, but so far little work has been done on this. 3.2 Space Energy Technologies Leading edge technologies for energy performance of on-orbit space systems can transition to terrestrial facilities and systems to lower their energy intensity and consumption. These technologies fall into three categories which are addressed in turn: energy generation, storage, and transmission. 3.2.1 Energy Generation Table 3.1 illustrates the near-, mid- and far-term opportunities in energy generation. Today, there is an emphasis on continuing to evolve Inverted Meta-Morphic (IMM) solar cell arrays that are exceeding 34% efficiency in demonstration programs. In contrast, current terrestrial solar cell arrays for energy generation are far less efficient, below 20%. If packaging and production issues could be overcome, the improved efficiency offered by IMM would dramatically improve the output capabilities of ground facility solar array systems and, in turn, lower the use of non-renewable energy sources. There may also be spinoff to the air and ground domains through programs such as DARPA‘s Vulture program, a long-endurance unmanned vehicle powered by solar cells, which is taking advantage of the same kinds of efficiency improvements in terrestrial systems. The importance of these S&T efforts lies in the fact that every 1% increase in solar cell energy generation efficiency translates to a 3.5% increase in power (or decrease in mass) for the system. The downside is that as the efficiency improves, the relative benefit is not as great, so there is a point of diminishing returns with the evolutionary approach. In addition, amorphous-Silicon (a-Si) for flexible arrays has achieved 10% efficiency. While a-Si has not been fully space qualified, it could be transitioned to terrestrial systems such as Remotely Piloted Aircraft (RPA) and powered tents. There are other breakthrough space energy generation component technologies with the potential of achieving up to 70% efficiency. Examples include quantum dots and dilute nitrides in solar cells. But there are also entirely new technologies such as tethers to attempt to harvest energy from the geomagnetic field, and energy harvesting from system heat waste. These ideas, as well as **new developments in** nuclear energy, including **small modular reactors, can potentially fuel** local **facilities.** Recently, there has been progress in developing large systems for energy generation, including very large deployable panels as developed by the Air Force Research Lab (AFRL), DARPA, and industry. For example, we are currently limited to 27 kW arrays for satellite power, whereas more power is required for some future space missions by the AF, National Security Space (NSS), and NASA. **Employing larger and more efficient arrays will enable missions that require very high power, such as** space-based radar or **space-based laser missions**. An example of a system that is almost ready for a flight demonstration is the AFRL-Boeing 30 kW Integrated Blanket Interconnect System (IBIS). Figure 3.2 shows the technology and implementation concept for such a High Power Solar Array (HPSA). In the long term, increased solar cell efficiencies and revolutionary materials foreshadow the potential of 500 kW on-orbit power generation technologies, which would be transformational for performing missions from space-based systems. In addition to improving photovoltaic efficiencies, other potential energy production is possible in the mid- to far-term. In addition to modern designs for autosafing, **small modular nuclear reactors** for ground operations energy, nuclear energy has been demonstrated on several satellite systems (e.g., Radioisotope Thermoelectric Generators (RTG)). **This source provides consistent power regardless of harvestable resources** (i.e. solar) at a much higher energy and power density than current technologies. While the implementation of such a technology should be weighed heavily against potential catastrophic outcomes, **many investments into small modular reactors can be leveraged for space based systems. As these nuclear power plants decrease in size, their utility on board space based assets increases.**

#### Causes arms racing and war

Bruce Gagnon (Coordinator of the Global Network Against Weapons & Nuclear Power in Space) 2001 “STATEMENT OF CONCERN “ http://www.space4peace.org/mission.htm

Another obstacle exists though. If the U.S. can "control" space, so might another nation. Thus we have the early stages of an arms race in space. How will France, Russia, China or any other nation respond as the U.S. consolidates its "control" of space? In order to ensure that the Pentagon maintains its current space military superiority the U.S. Space Command is now developing new war fighting technologies like the Ballistic Missile Defense (BMD) and Anti-satellite weapons (ASATS) as well as space based laser weapons. Star Wars is alive and well. Recent efforts to move toward early deployment of the BMD system, which could easily be used for offensive purposes, is expected to break the 1972 ABM Treaty as well as the Outer Space Treaty. Nuclear power in space becomes a key ingredient in the plans for space colonization and domination. Nuclear power is seen by NASA as an appropriate power source for interplanetary missions. Nuclear rockets are envisioned for trips to Mars and nuclear powered mining colonies are planned for the moon and Mars. At the same time the U.S. Space Command sees nuclear power as the primary source for the enormous amounts of power generation that will be required for space weapons. The Department of Energy (DoE) laboratories throughout the U.S., casting about for a new role as the need for more nuclear weapons diminishes, views space as a great new opportunity for their on-going nuclear production work. Labs like Hanford (Washington state); Savannah River Plant (South Carolina); Los Alamos (New Mexico); Lawrence Livermore (California); and INEL (Idaho) are already heavily involved in space nuclear power production efforts.

#### Extinction

**Chari, 7** – Research Professor, Institute of Peace and Conflict Studies (“CHINA’S ASAT TEST Seeking the Strategic High Ground,” <http://www.ipcs.org/pdf_file/issue/1512612560IPCS-Special-Report-34.pdf>)

Possession of satellites with both defensive and offensive capabilities could, in theory, enable the nation possessing them to acquire virtual invulnerability to counterattack by the adversary’s missiles. In other words, the ability to intercept a ballistic missile attack, using information acquired by reconnaissance and communication satellites, could ensure an invulnerable first strike capability, untrammeled by the angst that the adversary would be able to launch a second strike and inflict unacceptable damage on the aggressor. Disrupting a putative detection and interception capability by ASAT means could, arguably, restore the balance, and ensure that second-strike capabilities remain robust; thereby, the nuclear deterrent relationship between adversaries would also remain stable.¶Unfortunately, this scenario is unlikely to obtain in the real world. A nation which discovers that its space-based assets have become vulnerable to attack would, most likely, either enlarge their numbers or equip them with self-protecting equipment possessing both defensive and offensive capabilities. It could also place its other nuclear forces on hair-trigger alert to attack the aggressor if it finds its space-based assets being targeted or attacked. This not implausible scenario might very well spell the initiation of a **nuclear Armageddon**.¶ Proceeding further, the national judgment of when, how and in what manner it would determine that its space-based assets have been attacked to launch its counter-attack from space or earth would be made by computers. Given the reality that computers do malfunction and the well-recognized maxims of Murphy’s Law, the transfer of decision-making on such vital national security issues to computers and machines is hardly reassuring. Stated differently, the chances of accident, misunderstanding and misperception will increase should decisionmaking be largely premised on mechanical instruments, which is inevitable when satellites are equipped and empowered to launch attacks and defend themselves in space. This dispensation is, intrinsically, conducive to great instability and tensions in bilateral relations.

### CP

#### The United States Federal Government should

#### --with respect to Integral Fast Reactors that do not use SMR designs: approve and build a demonstration, provide commercial seed money, and use on military installations in the U.S.

#### --increase delay/disruption tolerant networking, including a Look-Ahead Routing and Message Scheduling approach on satellites and network nodes

#### --increase investment in smart microgrid technology for its military bases in the United States not supplied by small modular nuclear reactors via a diverse portfolio tailored to individual installation circumstances, including non-nuclear renewable energies for on-site generation, increased backup generation capacity, improvements in energy efficiency and energy storage, intelligent local energy management, and accelerated implementation of the SPIDERS project

#### --initiate a high-level strategic dialogue with the People’s Republic of China about norms for appropriate space policies in which it offers to share space situational awareness data and permanently and verifiably ground the X-37B

#### Solves the aff—IFRs are commercially viable—they have no SMRs key warrant

**Kirsh 11** (Steven T. Kirsh, Bachelor of Science and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology, “Why Obama should meet Till,” 9/28/11)

http://bravenewclimate.com/2011/09/28/why-obama-should-meet-till/¶ I will tell you the story of an amazing clean power technology that can use nuclear waste for fuel and emit no long-lived nuclear waste; that can supply clean power at low cost for our planet, 24×7, for millions of years without running out of fuel. I will tell you why this technology is our best bet to reduce the impact of global warming on our planet. And finally, I will tell you why nobody is doing anything about it and why this needs to be corrected.¶ If you act on this letter, you will save our country billions of dollars and allow us to become leaders in clean energy. If you delegate it downward, nothing will happen.¶ I have no vested interest in this; I am writing because I care about the future of our planet¶ First, since we met only briefly during the Obama campaign, let me provide a little background about myself. I am a high-tech entrepreneur and philanthropist based in Silicon Valley. I have received numerous awards for my philanthropy. For example, in 2003, I was honored to receive a National Caring Award presented by then Senator Clinton. The largest engineering auditorium at MIT is named in my honor. The first community college LEED platinum building in the nation is also named in my honor.¶ I am also active in Democratic politics. In the 2000 election, for example, I was the single largest political donor in the United States, donating over $10 million dollars to help Al Gore get elected. Unfortunately, we lost that one by one vote (on the Supreme Court).¶ I have no vested interest in nuclear power or anything else that is described below. I write only as someone who cares about our nation, the environment, and our planet. I am trying to do everything I can so my kids have a habitable world to live in. Nothing more.¶ Dr. James Hansen first made me aware of fast reactors in his letter to Obama in 2009¶ As an environmentalist, I have been a fan of Jim Hansen’s work for nearly two decades. Many consider Dr. Hansen to be the world’s leading expert on global warming. For example, Hansen was the first person to make Congress aware of global warming in his Senate testimony in 1988. Hansen is also Al Gore’s science advisor.¶ In 2009, Dr. Hansen wrote a letter to President Obama urging him to do just three things that are critical to stop global warming: 1) phase out coal plants, 2) impose a feebate on carbon emissions with a 100% rebate to consumers and 3) re-start fourth generation nuclear plants, which can use nuclear waste as fuel. Hansen’s letter to Obama is documented here: http://www.guardian.co.uk/environment/2009/jan/02/obama-climate-change-james-hansen¶ Upon reading Hansen’s recommendations, I was fascinated by the last recommendation. The fourth-generation power plants Hansen advocated sounded too good to be true. If what Hansen was saying was true, then why wasn’t our nation jumping on that technology? It made no sense to me.¶ Lack of knowledge, misinformation, and the complexity of nuclear technology have hampered efforts to get a fast reactor built in the US¶ I spent the next two years finding out the answer to that question. The short answer is three-fold: (1) most people know absolutely nothing about the amazing fourth generation nuclear power plant that we safely ran for 30 years in the US and (2) there is a lot of misleading information being spread by seemingly respectable people (some of whom are in the White House) who never worked on a fourth generation reactor that is totally false. It’s not that they are misleading people deliberately; it’s just that they were either listening to the wrong sources or they are jumping to erroneous conclusions. For example, the most popular misconception is that “reprocessing is a proliferation risk.” That statement fails to distinguish between available reprocessing techniques. It is absolutely true for the French method but it is absolutely not true for the technology described in this letter! The third reason is that the technology is complicated. Most people don’t know the difference between oxide fuel and metal fuel. Most people don’t know what a fast reactor is. Most people can’t tell you the difference between PUREX, UREX, and pyroprocessing. So people with an agenda can happily trot out arguments that support their beliefs and it all sounds perfectly credible. They simply leave out the critical details.¶ We don’t need more R&D. We already have a technology in hand to help us solve global warming and safely get rid of our nuclear waste at low cost. But we aren’t doing anything with it. That’s a serious mistake.¶ Today, our nation faces many serious challenges such as:¶ How can we avert global warming?¶ How can we dispose of our existing nuclear waste safely?¶ How can we generate base-load carbon-free power at very low cost?¶ How can we avoid creating any additional long-lived nuclear waste?¶ How can we grow our economy and create jobs?¶ How can we become the world leader in clean energy?¶ How can we do all of the above while at the same time spending billions less than we are now?¶ The good news is that we already have a proven technology that can address all of these problems. It is a technology that has enjoyed over 30 years of bi-partisan Congressional and Presidential support. It is an advanced nuclear technology that was invented in 1951 by the legendary Walter Zinn and then refined and perfected over a 30 year period, from 1964 to 1994 by Dr. Charles Till who led a team of 1,200 people at the Argonne National Laboratory. Till’s reactor was known as the Integral Fast Reactor (IFR) because it both produced power and recycled its own waste back into the reactor. This is the technology that Hansen referenced in his letter to the President.¶ The IFR is a fourth-generation nuclear design that has several unique and valuable characteristics:¶ It can use our existing nuclear waste (from power plants and weapons) as fuel; we have over 1,000 years of power available by just using today’s nuclear waste. Instead of trying to bury that “waste” in Yucca Mountain, we could be using it for fuel in fast reactors.¶ It generates no long-lived nuclear waste.¶ It is safer than today’s light water reactor (LWR) nuclear power plants. Unlike the Fukushima LWR reactors (a second generation nuclear technology invented 50 years ago), the IFR does NOT require electricity to shut down safely. The IFR shuts down passively if a mishap occurs; no operator intervention or active safety systems are required. They ran the Three Mile Island and Chernobyl scenarios on a live reactor and the reactor shut itself down safely, no operator intervention required, just as predicted. In addition, unlike with LWRs, the IFR runs at low pressure which adds to the safety profile.¶ It reduces the risk of nuclear proliferation because: (1) it eliminates the need for enrichment facilities (which can be used for making nuclear bomb material), (2) the nuclear material that is used in the IFR is not suitable for making bombs and (2) because the nuclear material in the reactor and in the reprocessing hot cell is too “hot” to be stolen or used in a weapon.¶ Experts at General Electric (GE) believe that the IFR has the potential to produce power for less than the price of coal. Dr. Loewen can confirm that if you have any doubts.¶ GE already has an IFR design on the table that they would like to build as soon as possible. Dr. Loewen can confirm that as well.¶ The US Nuclear Regulatory Commission, in January 1994, issued a pre-application safety evaluation report in which they found no objections or impediments to licensing the IFR. You can see the NRC report in the 8 minute video.¶ The design is proven. It produced electric power without mishap for 30 years before the project was abruptly cancelled.¶ Dr Charles Till¶ The IFR’s ability to solve the nuclear waste problem should not be underestimated. As respected nuclear experts have pointed out, a practical solution to the nuclear waste problem is required if we are to revive nuclear power in the United States. The Blue Ribbon Commission (BRC) on America’s Nuclear Future basically concluded this: “continue doing the same thing we are doing today and keep doing R&D.” That was predictable because it was a consensus report; everyone had to agree. So nothing happened. And because there was no consensus from the BRC , there is less money for nuclear because there is no solution to the waste problem. It’s a downward death spiral.¶ Please pardon me for a second and allow me to rant about consensus reports. In my 30 year career as an entrepreneur, I’ve raised tens of millions of millions of dollars in investment capital from venture capitalists all over the world. I always ask them how they make investment decisions. They always tell me, “If we had to get al partners to agree on an investment, we’d never make any investments. If you can get two partners to champion your company, that is sufficient to drive an investment decision.” Therefore, if you want to get nothing done, ask for a consensus report. If you want to actually solve problems, you should listen to what the people most knowledgeable about the problem are saying.¶ Dr Yoon I. Chang¶ Had President Obama asked the Commissioners on the Nuclear Regulatory Commission (NRC) who have the most knowledge of fast reactors the same question that he tasked the BRC with, he would have gotten a completely different answer. They would have told President Obama that fast reactors and pyroprocessing are the way to go and we better get started immediately with something that we already know works because there is still a ten year time if we were to start the reactor building process today. Their advice leads to a viable solution that we know will work and it will make the US a leader in clean nuclear power. Following the BRC’s consensus advice will lead to decades of inaction. Totally predictable.¶ If we put a national focus on developing and cost reducing the IFR, we’d have a killer product and lead the world in being a clean energy leader¶ It would be great if we had a long-term strategy and vision for how we become energy independent and solve the global warming problem and help our economy at the same time. The IFR can play a key role in that vision. If we put a national focus on developing and commercializing the IFR technology we invented, we can create jobs, help our trade balance, mitigate global warming, become energy independent, show the world a safe way to get rid of nuclear waste, and become the leaders in clean power technology.¶ Nuclear power is the elephant in the room. Even though we haven’t built a new nuclear plant in 30 years, nuclear still supplies 70% of the clean energy in America today. That feat was largely accomplished in a single ten year period. Renewables have had 3 decades to “catch up” and they aren’t anywhere close. Nuclear’s continued dominance shows that nuclear power is indeed the elephant in the room when it comes to being able to install clean energy quickly and affordably.¶ The bad news is that President Clinton decided that this technology, which would have produced unlimited amounts of base-load carbon-free power for a price as low as anything else available today, was not needed and cancelled the project in 1994.¶ Cancelling the IFR was a big mistake. It’s still the world’s best fast nuclear technology according to an independent study by the Gen IV International Forum.¶ Many top scientists all over the world believe that President Clinton’s decision was a huge mistake. The Senate had voted to continue to fund it. The project had been supported by six US Presidents; Republicans and Democrats. In fact, the project’s biggest proponent was Republican President Richard Nixon who said in 1971, “Our best hope today for meeting the Nation’s growing demand for economical clean energy lies with the fast breeder reactor.”¶ Republican Senator Kempthorne said of the IFR cancellation:¶ Unfortunately, this program was canceled just 2 short years before the proof of concept. I assure my colleagues someday our Nation will regret and reverse this shortsighted decision. But complete or not, the concept and the work done to prove it remain genius and a great contribution to the world.¶ While I am not a big fan of Senator Kempthorne, I couldn’t agree more with what he said in this particular case.¶ The IFR remains the single best advanced nuclear power design ever invented. That fact was made clear when in 2002, over 240 leading nuclear scientists from all over the world (in a Gen IV International Forum sponsored study) independently evaluated all fourth-generation nuclear designs and ranked the IFR the #1 best overall advanced nuclear design.¶ The IFR was cancelled in 1994 without so much as a phone call to anyone who worked on the project. They didn’t call then. They haven’t called since. They simply pulled the plug and told people not to talk about the technology.¶ The US government invested over $5 billion dollars in the IFR. Fast reactor R&D is largest single technology investment DOE has ever made. According to a top DOE nuclear official (Ray Hunter, the former NE2 at DOE), the “IFR became the preferred path because of waste management, safety, and economics.” The reactor produced power for 30 years without incident. Despite that track record, before it was cancelled, nobody from the White House ever met with anyone who worked on the project to discuss whether it should be terminated or not. It was simply unilaterally terminated by the White House for political reasons. Technical experts were never consulted. To this day, no one from the White House has met with Dr. Till to understand the benefits of the project. The technical merits simply did not matter.¶ I urge you to recommend to President Obama that he meet personally with Dr. Charles Till so that the President can hear first hand why it is so critical for the health of our nation and our planet that this project, known as the Integral Fast Reactor (IFR), be restarted. Dr. Till headed the project at Argonne National Laboratory until his retirement in 1997. He is, without a doubt, the world’s leading expert on IFR technology.¶ Want to solve global warming? Easy. Just create a 24×7 clean power source that costs the same as coal. Prominent scientists believe that the IFR can achieve this.¶ Dr. Hansen has pointed out many times that it is imperative to eliminate all coal plants worldwide since otherwise, we will never win the battle against global warming. But we know from experience that treaties and agreements do not work. Here’s a quote from an article (“The Most Important Investment that We Aren’t Making to Mitigate the Climate Crisis”) that I wrote in December 2009 published in the Huffington Post:¶ If you want to get emissions reductions, you must make the alternatives for electric power generation cheaper than coal. It’s that simple. If you don’t do that, you lose.¶ The billions we invest in R&D now in building a clean and cheaper alternative to coal power will pay off in spades later. We have a really great option now — the IFR is on the verge of commercial readiness — and potential competitors such as the Liquid Fluoride Thorium Reactor (LFTR) are in the wings. But the US government isn’t investing in developing any of these breakthrough new base-load power generation technologies. Not a single one.¶ I found it really amazing that global leaders were promising billions, even hundreds of billions in Copenhagen for “fighting climate change” when they weren’t investing one cent in the nuclear technologies that can stop coal and replace it with something cheaper.¶ [ Note: 6 days ago, on September 22, 2011, DOE agreed to give $7.5M to MIT to do R&D on a molten-salt reactor. That’s good, but we should be building the technology we already have proven in 30 years of operational experience before we invest in unproven new technologies. ]¶ Dr. Loewen has personally looked at the costs for the building the IFR in detail and believes the IFR can generate power at a cost comparable to a coal plant. So it’s arguably our best shot at displacing coal plants. This is precisely why Dr. Hansen believes that the IFR should be a top priority if we want to save our planet.¶ It isn’t just nuclear experts that support the IFR¶ US Congressman John Garamendi (D-CA) is also a major IFR supporter. When he was Lt. Governor of California, Congressman Garamendi convened a panel of over a dozen our nation’s top scientists to discuss the IFR technology. As a result of that meeting, Garamendi became convinced that the IFR is critically important and he is currently trying very hard to get a bill passed in the House to restart it. Unfortunately, virtually everyone in Congress seems to have forgotten about this project even though in the 1970’s it was the President’s top energy priority. Nothing has changed since then. No other clean energy technology has been invented that is superior to the IFR for generating low-cost carbon-free base-load electric power.¶ Bill Gates also found exactly the same thing when he looked at how to solve the global warming problem. As he explained in a recent TED talk, renewables will never solve the climate crisis. The only viable technology is fourth-generation nuclear power and the best advanced nuclear technology is the IFR. That is why this is Gate’s only clean energy investment. Gates’ TerraPower Travelling Wave Reactor (TWR) is a variant of the IFR design. When Gates approached DOE to try to build his reactor in the US, he was told to build it outside of the US.¶ Nobel prize winner Hans Bethe (now deceased) was an enthusiastic supporter. Freeman Dyson called Bethe the “supreme problem solver of the 20th century. Chuck Till told me the following story of Bethe’s support for the IFR:¶ A tale from the past: A year or two before the events I’ll describe, Hans Bethe had been contacted by the Argonne Lab Director for his recommendation on who to seek to replace the existing head of Argonne’s reactor program.¶ Bethe told him the best choice was already there in the Lab, so it was in this way that I was put in charge. I had had quite a few sessions with him in the years leading up to it, as we were able to do a lot of calculations on the effects of reactor types on resources that he didn’t have the capability at his disposal to do himself.¶ So when I wanted to initiate the IFR thrust, the first outside person I went to was Bethe at Cornell. After a full day of briefing from all the specialists I had taken with me, he suggested a brief private meeting with me. He was direct. He said “All the pieces fit. I am prepared to write a letter stating this. Who do you want me to address it to? I think the President’s Science Advisor, don’t you?” I said the obvious – that his opinion would be given great weight, and would give instant respectability.¶ He went on, “I know him quite well. Who else?” I said I was sure that Senator McClure (who was chairman of Senate Energy and Resources at the time) would be relieved to hear from him. That the Senator would be inclined to support us, as we were fairly prominent in the economy of the state of Idaho, and for that reason I had easy access to him. But to know that Hans Bethe, a man renowned for his common sense in nuclear and all energy matters, supported such an effort would give him the Senator solid and quotable reason for his own support, not dismissible as parochial politics, that the Senator would want if he was to lead the congressional efforts. “Yes,” he said in that way he had, “I agree.”¶ I’ve always thought that the President’s Science Advisor’s intervention with DOE, to give us a start, was not the result of our meeting him, but rather it was because of the gravitas Hans Bethe provided with a one page letter.¶ How do we lead the world in clean energy if we put our most powerful clean energy technology on the shelf?!?¶ President Obama has stated that he wants the US to be a leader in clean energy. I do not see how we achieve that if we allow our most advanced clean energy technology to sit on the shelf collecting dust and we tell one of America’s most respected businessmen that he should build his clean energy technology in another country. We have an opportunity here to export energy technology to China instead of importing it. But due to Clinton’s decision, we are allowing the Russians to sell similar fast reactor technology to the Chinese. It should have been us.¶ Re-starting the IFR will allow us to cancel a $10 billion stupid expenditure. The IFR only costs $3B to build. We’d get more, pay less. On pure economics alone, it’s a no brainer.¶ Finally, even if you find none of the arguments above to be compelling, there is one more reason to restart the IFR project: it will save billions of dollars. Today, we are contracting with the French to build a MOX reprocessing plant in Savannah River. The cost of that project is $10 billion dollars. We are doing it to meet our treaty obligations with the Russians. Former top DOE nuclear managers agree this is a huge waste of money because we can build an IFR which can reprocess 10 times at much weapons waste per year for a fraction of that cost.¶ The Russians are laughing at our stupidity. They are going to be disposing of their weapons waste in fast reactors, just like we should be. The Russians are also exporting their fast reactors to the Chinese. Had the US not cancelled our fast reactor program, we would be the world leader in this technology because our technology remains better than any other fourth generation technology in the world.¶ If you delegate this to someone else, nothing will happen. Here’s why.¶ Delegating this letter downward from the White House to someone in DOE to evaluate will result in inaction and no follow up. I know this from past attempts that have been made. It just gets lost and there is no follow up. Every time. The guys at DOE want to do it, but they know that they will get completely stopped by OMB and OSTP. Both Carol Browner and Steven Chu asked former DOE nuclear management what to do about nuclear waste. They were told that using fast reactors and reprocessing was the way to go. But nothing happened. So Chu has given up trying. According to knowledgeable sources, the White House has told DOE in no uncertain terms, “do not build anything nuclear in the US.” It’s not clear who is making these decisions, but many people believe it is being driven by Steven Fetter in OSTP.¶ Dr. Till knows all of this. He knows that unless he personally meets with the President to tell the story of this amazing technology, nothing will happen.¶ I’ve discussed the IFR with Steve Fetter and he has his facts wrong. Fetter is basically a Frank von Hippel disciple: they have written at least 14 papers together! It was von Hippel who was largely responsible for killing the IFR under Clinton.¶ So von Hippel’s misguided thought process is driving White House policy today. That’s a big mistake. Professor von Hippel twists the facts to support his point of view and fails to bring up compelling counter arguments that he knows are true but would not support his position. He’s not being intellectually honest. I’ve experienced this myself, firsthand. For example, von Hippel often writes that fast reactors are unreliable. When I pointed out to him that there are several examples of reliable fast reactors, including the EBR-II which ran for decades without incident, he said, that these were the “exceptions that prove the rule.” I was floored by that. That’s crazy. It only proves that it is complicated to build a fast reactor, but that it can easily be done very reliably if you know what you are doing. There is nothing inherent to the technology that makes it “unreliable.” You just have to figure out the secrets. When von Hippel heard that Congressman Garamendi was supporting the IFR, he demanded a meeting with Garamendi to “set him straight.” But what happened was just the opposite: Garamendi pointed out to von Hippel that von Hippel’s “facts” were wrong. Von Hippel left that meeting with Garamendi with his tail between his legs muttering something about that being the first time he’s ever spoken with anyone in Congress who knew anything about fast nuclear reactors. In short, if you watch a debate between von Hippel and Garamendi (who is not a scientist), Garamendi easily wins on the facts. If you put von Hippel up against someone who knows the technology like Till, Till would crush von Hippel on both the facts and the arguments. But the Clinton White House never invited Till to debate the arguments with von Hippel. They simply trusted what von Hippel told them. Big mistake.¶ There are lots of problems with von Hippel’s arguments. For example, von Hippel ignores reality believing that if the USA doesn’t do something then it will not happen. That’s incredibly naieve and he’s been proven wrong. The USA invented a safe way to reprocess nuclear waste that isn’t a proliferation risk called pyroprocessing. The nuclear material is not suitable for making a bomb at any time in the process. But we never commercialized it because von Hippel convinced Clinton to cancel it. The French commercialized their reprocessing process (PUREX) which separates out pure plutonium and makes it trivial to make bomb material. So because countries need to reprocess, they pick the unsafe technology because they have no alternative. Similarly, because von Hippel had our fast reactor program cancelled, the Russians are the leaders in fast reactor technology. They’ve been using fast reactor technology for over 30 years to generate power commercially. But we know the Russians have a terrible nuclear safety record (e.g., Chernobyl). The fact is that the Chinese are buying fast reactors from the Russians because there is no US alternative. The problem with von Hippel’s arguments are that the genie is out of the bottle. We can either lead the world in showing how we can do this safely, or the world will choose the less safe alternatives. Today, von Hippel’s decisions have made the world less safe. I could go on and on about how bad von Hippel’s advice is, but this letter is already way too long.¶ MIT was wrong in their report about “The Future of the Nuclear Fuel Cycle”¶ The only other seemingly credible argument against building fast reactors now comes from MIT. The report’s recommendation that we have plenty of time to do R&D appears largely to be driven by one person, co-chair Ernie Moniz.¶ Four world-famous experts on nuclear power and/or climate change and one Congressman challenged Moniz to a debate on the MIT campus on his report. Moniz declined.¶ The report has several major problems. Here are a few of them.¶ The MIT report is inconsistent. On the one hand it says, “To enable an expansion of nuclear power, it must overcome critical challenges in cost, waste disposal, and proliferation concerns while maintaining its currently excellent safety and reliability record.” We agree with that! But then it inexplicably says, “… there are many more viable fuel cycle options and that the optimum choice among them faces great uncertainty…. Greater clarity should emerge over the next few decades… A key message from our work is that we can and should preserve our options for fuel cycle choices by …[continuing doing what we are doing today] … and researching technology alternatives appropriate to a range of nuclear energy futures.” So even though we have a solution now that can be deployed so we can enable an expansion of nuclear power as soon as possible, MIT advises that we should spend a few more decades because we might find something better than the IFR. This is just about the dumbest thing I’ve ever heard coming from MIT. If you ask any scientist who knows anything about global warming, they will tell you we are decades late in deploying carbon-free power. Had we aggressively ramped fast nuclear closed-cycle reactors decades ago and promoted them worldwide, we wouldn’t be anywhere close to the disastrous situation we are in today. So we are decades too late in ramping up nuclear power, and Moniz wants us to spend decades doing more R&D to get a solution that might be lower cost than the IFR. That’s insane.¶ The report looks at the market price of uranium, but the market price completely ignores the environmental impacts of uranium mining. Shouldn’t that be taken into account? It’s like the cost of gas is cheap because the market price doesn’t include the hidden costs: the impact on the environment and on our health.¶ Do you really think that people are going to embrace expansion of uranium mining in the US? The MIT report is silent on that. So then we are back to being dependent on other countries for uranium. Wasn’t the whole point to be energy independent? The IFR provides that now. We wouldn’t have to do any uranium mining ever again. After a thousand years, when we’ve used all our existing nuclear waste as fuel, we can extract the additional fuel we need from seawater, making our seas less radioactive. We can do that for millions of years.¶ The MIT report ignores what other countries are doing. Obama wants the US to be a leader in clean energy technology. You do that by building the most advanced nuclear designs and refining them. That’s the way you learn and improve. MIT would have us stuck on old LWR technology for a few decades. Does anyone seriously think that is the way to be the world leader? There is virtually no room for improvement in LWR technology. IFR technology is nearly 100 times more efficient, and it emits no long term nuclear waste. If you are a buyer of nuclear power in China, which nuclear reactor are you going to pick? The one that is 100 times more efficient and generates no waste? Or the one that is 100 times less efficient and generates waste that you better store for a million years? Wow. Now that’s a real tough question, isn’t it. Gotta ponder that one. I’m sure Apple Computer isn’t taking advice from Moniz. If they were, they’d still be building the Apple I. Ernie should get a clue. The reason Apple is a market leader is because they bring the latest technology to market before anyone else, not because they keep producing old stuff and spend decades doing R&D to see if they can come up with something better. Other countries are not hampered by MIT’s report. France and Japan recently entered into an agreement with the US DOE whereby we’re giving them the IFR technology for them to exploit. Even though we are stupid, they aren’t stupid. The Chinese are ordering inferior oxide fueled fast reactors from Russia. If the US were building metal-fueled fast reactors with pyroprocessing, it’s a good bet the Chinese would be buying from us instead of the Russians. But if we take Moniz’s advice to not build the world’s best advanced nuclear technology we already have, then there is no chance of that happening. By the time we get to market with a fast reactor, it will be all over. We’ll arrive to the market decades late. Another great American invention that we blew it on.¶ There will always be new technologies that people will propose. But the IFR is a bird in the hand and we really need a solution now we can depend on. If something comes along later that is better, that’s great. But if it doesn’t, we will have a viable technology. We can’t afford to get this wrong. We have already run out of time. Any new nuclear designs are decades away from deployment.¶ On September 22, 2011, DOE agreed to give MIT $7.5 millions of dollars on starting R&D on a fourth generation molten salt reactor design that have never been proven. While it might work, the very smart scientists at Oak Ridge National Laboratory spent well over a decade on this and were never able to make it work. So DOE is spending millions on an unproven design while spending nothing on the “sure thing” fourth generation reactor that we already know how to build and that ran flawlessly for 30 years. We are all scratching our heads on that one. It makes no sense. But the reason for this is clear: the mandate from the White House that nothing is to built means that DOE can only initiate research, and then cancel the project right before anything would be built. This is an excellent plan for demoralizing scientists and allowing other countries to lead the world in clean energy. Is that really what we want?? If so, then there are much less expensive ways to accomplish that.¶ At a minimum we should be investing in commercializing our “bird in the hand.” That way, if the new molten salt reactor experiments don’t work out, we’ll still have a viable solution to the nuclear waste problem. If we keep cancelling successful projects right before they are done, hoping for the next big thing, we will forever be in R&D mode and get nothing done. That’s where we are today with fourth generation nuclear.¶ I know this is an unusual request, but I also know that if the President is allowed to evaluate the facts first hand, I am absolutely convinced that he will come to the same conclusion as we all have.¶ I urge you to view an 8 minute video narrated by former CBS Morning News anchor Bill Kurtis that explains all of this in a way that anyone can understand. This video can be found at:¶ The video will amaze you.¶ If you would like an independent assessment of what I wrote above from a neutral , trustworthy, and knowledgeable expert, Bill Magwood would be an excellent choice. Magwood was head of nuclear at DOE under Clinton and Bush, and was the longest serving head of nuclear at DOE in US history. He served under both Clinton and Bush administrations. Magwood is familiar with the IFR, but the IFR was cancelled before he was appointed to head civilian nuclear at DOE. So Magwood has no vested interest in the IFR at all. More recently, Magwood was appointed by President Obama to serve on the NRC and is currently serving in that role. Of the current five NRC Commissioners, Magwood is by far, the person most knowledgeable (PMK) about fast reactors.¶ Thank you for your help in bringing this important matter to the President’s attention.¶ Summary¶ Nuclear power is needed. Renewables alone won’t do it.¶ In order to revive nuclear in the US, you must have a viable solution to the nuclear waste problem.¶ The French reprocess their nuclear waste, but their process is expensive, environmentally unfriendly, and has proliferation problems.¶ The USA developed an inexpensive, environmentally friendly, and proliferation resistant method to reprocess our waste (the IFR), but we cancelled it. That decision was a mistake.¶ We should restart the IFR in the US. It will cost $3B to build, but we can cancel the Areva MOX plant and save $10B to pay for it. So we’ll save money, save the planet from an environmental catastrophe, create jobs, get rid of our nuclear waste, and become the world leader in clean energy technology.¶ President Obama should meet personally with Dr. Charles Till, the world’s leading expert on fast reactor technology. Dr. Till will not waste his time meeting with anyone other than the President because he knows that without personal support of the President, nothing will happen. He’s right.¶ Supporters of this technology include Nobel prize winner Hans Bethe (now deceased), Steven Chu, Dr. James Hansen, Dr. Charles Till, Dr. Eric Loewen, Congressman John Garamendi, Bill Gates, and even the President of MIT. Even the board of directors of the historically anti-nuclear Sierra Club has agreed that they will not oppose building an IFR!¶ Opposition is from OSTP and OMB. We don’t know who or why. It’s a mystery to all my sources. Frank von Hippel thinks you cannot make fast reactors cheaply or reliably and maintains that stance even when the facts show that not to be the case. Ernie Moniz at MIT thinks we shouldn’t build anything now, but do more R&D for the next several decades hoping we can find something better.¶ Bill Magwood, an Obama appointee to the NRC, would be a reasonable choice to provide an objective assessment of the IFR. He has no vested interested in the IFR, but having been the longest serving head of DOE civilian nuclear in history, is familiar with the pros and cons of the technology.¶ Should OSTP and OMB be making these key decisions behind closed doors? Is this really reflective of what the President wants? He’s stated publicly he wants the US to be a world leader in clean energy. Is putting our best technology on the shelf, but licensing the French and Japanese to build it (Joint Statement on Trilateral Cooperation in the area of Sodium-cooled Fast Reactors signed on October 4, 2010 by DOE), the best way for the US to achieve the leadership that Obama said he wanted?¶ I am happy to provide you with additional information.

#### Administrative changes solve gaps in network communications for vulnerable areas

**NSTAC 11** (4/19, National Securtiy Telecommunications Advisory Committee, “NSTAC Report to the President on Communications Resiliency,” http://www.ncs.gov/nstac/reports/NSTAC%20Report%20to%20the%20President%20on%20Communications%20Resiliency%20(2011-04-19)(Final)(pdf).pdf)

Direct DOD and other appropriate departments and agencies to enhance the utility of and reliance upon satellite systems to provide alternate communications when terrestrial-based communications infrastructure is impaired. To ensure ubiquitous, redundant, and resilient disaster communications, satellite-based communications should become a required component of critical communications networks. In particular, the President should direct the appropriate department or agency to:

Investigate the possibility of investing in additional pre-positioned, leased satellite capacity to restore commercial communications transport in the event of an emergency and ensure that appropriate satellite ground equipment is in place to augment satellite capacity and equipment.

Expand Federal interoperability grant funding and guidance to encourage NS/EP entities to acquire mobile satellite communications equipment and ensure that critical staff are educated and trained in satellite use. Emergency response drills and exercises that include the use of mobile satellite communications should also be mandated.

Modify public safety communications grant funding programs to require that State interoperable communications plans place greater emphasis on satellite communications generally to provide resiliency during a disaster. 49

#### Satellite protocols solve, even if ground networks are destroyed

**NSTAC 09** – (Nov. 2009, National Securtiy Telecommunications Advisory Committee, “NSTAC Report to the President on Commercial Satellite Communications Mission Assurance,” <http://www.ncs.gov/nstac/reports/2009/NSTAC%20STF%20Report%20FINAL%2011302009.pdf>)

The DoD is currently exploring the benefits of placing IP routers aboard commercial satellites. Under the DoD Joint Capabilities Technology Demonstration program, one organization has developed and will demonstrate a radiation-tolerant router to implement network services directly onboard a commercial communications satellite in 2010. Such space-based network nodes (SBNN) may offer several benefits as they are developed and deployed commercially.

Security Benefits

SBNNs provide benefits to the security of the RF, ground, and cyber segments and can be managed securely out-of-band from the SOC by a control bus that is separate from the main satellite bus. SBNNs may include an onboard route processing engine and an RF hub modem waveform, helping to mitigate RF spoofing and theft of service. SBNNs employ onboard processing, which reduces the ability to geolocate a transmitting terminal. SBNNs may also allow for the introduction of advanced features or new RF waveforms through use of an upgradeable software-based modem. Ground security benefits include a reduction in the reliance on teleports, as traffic does not have to be double-hopped to the teleport. User traffic can pass directly between satellite users on different transponders or spot beams, even in the event that the teleport is inactive or compromised. The value of SBNNs increases as more SBNNS are deployed across multiple satellites, because **inter-satellite links can provide additional network resiliency in the event ground infrastructure is compromised.** SBNNs may leverage existing cybersecurity features and network attack protections if they are evolved from terrestrial antecedents. SBNNs are part of a layered security architecture as an SBNN may be a potential target of a security threat similar to those of terrestrial network nodes.

Performance Benefits

SBNNs can reduce latency for satellite users since network traffic can be routed dynamically onboard a satellite, including across transponders and beam types, without having to double-hop to a teleport station. This reduction in latency can be significant for many real-time applications as the round-trip time delay between a geostationary satellite and a teleport can be up to 0.25 seconds. As part of a layered security architecture, SBNNs may be a potential target of a security threat similar to those of terrestrial network nodes.

Cost Benefits

A reduction in transponder and ground segment costs may be achieved with SBNNs as compared to bent-pipe solutions (which include more than one hop), because the reduced reliance on teleports for terminal-to-terminal communications means that fewer transponders are required.

Space Based Network Nodes Summary

SBNNs deployed onboard a satellite may dynamically route traffic between different satellite users without having to double-hop to the teleport, even if the users are on different transponders. The ability to avoid the double-hop to the teleport can increase security since the satellite can continue to function **even if the ground** teleport **system is unavailable** or compromised. SBNNs are regenerative, using onboard processing and decoupling the RF uplink and downlink, which can increase the security and performance of RF systems. SBNNs can be designed to leverage existing terrestrial network technologies, which increases cybersecurity by mitigating cyber attacks, and may integrate independent research and development from commercial technology leaders to reduce the cost to provide NS/EP network communications over a satellite.

#### The combination of smart grid mechanisms compensates for individual weaknesses

SERDP 12 – the Strategic Environmental Research and Development Program, DoD’s environmental science and technology program, executed in partnership with DOE and EPA, 7/10/12, “DoD Study Finds Microgrids Offer Improved Energy Security for DoD Installations,” http://www.serdp.org/News-and-Events/News-Announcements/Program-News/DoD-study-finds-microgrids-offer-improved-energy-security-for-DoD-installations

Advanced microgrids offer a cost-effective solution to military installations' growing vulnerability to the fragile electric grid, according to a study released today by DoD’s Office of Installations and Environment. The study performed by MIT Lincoln Laboratory looked at different microgrid architectures and characteristics and compared their relative cost-effectiveness. The report provides insight into increasing energy security and reducing energy costs through the incorporation of renewable energy resources into microgrids, as well as new market opportunities for DoD in the area of demand response and ancillary services.

The study highlights the extent of ongoing microgrid work across DoD. It identified 44 installations that either had existing microgrids, planned installation of microgrids, or conducted microgrid studies or demonstrations at their facilities. The authors interviewed more than 75 people from the military Services, the Office of the Secretary of Defense, and the Department of Energy. The analysis categorized the ongoing microgrid efforts based on several key attributes including size, maturity, the inclusion of renewable resources, and the ability to operate in a grid-tied manner.

The analysis confirms the value of microgrids to DoD. The **combination** of on-site energy generation and storage, together with the microgrid’s ability to manage local energy supply and demand, allow installations to shed non-essential loads and maintain mission-critical loads if the electric grid is disrupted.

The report illustrates the largely untapped potential of moving to smarter, next generation microgrids that would accommodate far greater penetration of renewable energy sources, as well as tighter integration with the electrical grid. If solar resources that are increasingly being installed on DoD installations were available during islanded operation of a microgrid, they could **significantly extend** the **islanding time**. Moreover, a microgrid that could operate when tied to the grid would offer new opportunities for the DoD to generate cost savings by using backup generation assets during normal operation and generate financial revenue by using advanced ancillary services.

#### SPIDERS project is enough to maintain functions during prolonged outages

Robert K. Ackerman 12, SIGNAL Magazine, February 2012, “Military Energy Enters SPIDERS Web,” http://www.afcea.org/content/?q=node/2877

No man may be an island, but each U.S. military base may become an energy island if a joint project among the Department of Energy, the Department of Homeland Security and the Defense Department comes to fruition. The effort aims to develop a microgrid that would supply a base with internal power independent of any external source that might fail as a result of enemy action.

**Network security** would be a key element of this energy microgrid. Facing the possibility of a cyberattack on the nation’s power grid, military bases must be able to sustain internal power with a degree of immunity from the online tactics employed by cybermarauders.

This program also seeks to blend a host of conventional and alternative energy sources into a single entity that would respond seamlessly to internal base power demands. Complicating the endeavor to link these energy sources is the requirement to provide secure network control that could interoperate with the public power grid but still be immune to cyberthreats that menace the larger network.

Known as the Smart Power Infrastructure Demonstration for Energy Reliability and Security, or SPIDERS, the project is a Defense Department joint capability technology demonstration (JCTD). It already is underway at Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, and later phases will evaluate progressively sophisticated systems at Fort Collins, Colorado, and Camp Smith, Hawaii.

Melanie Johnson, an electrical engineer with the Army Corps of Engineers Construction Engineering Research Laboratory, explains that SPIDERS is designed to develop a template for bringing microgrid technology to military installations in the United States. Its success would have implications for installations outside the United States, particularly in operational settings, she points out.

Part of the SPIDERS technical management team, Johnson explains that a key element in SPIDERS is to provide network security for the communications and control systems within that microgrid environment. That security would be vital if a base loses power because of a cyberattack on the local power grid.

What sets SPIDERS apart from other microgrid efforts is its emphasis on cybersecurity and network communications. Security is a primary SPIDERS objective, Johnson says, adding that this includes information assurance certification and implementing emerging standards from the National Institute of Standards and Technology (NIST), the North American Electric Reliability Corporation (NERC) and Department of Energy organizations.

Adding cybersecurity to the microgrid complicates the picture and requires “a little critical thinking,” Johnson observes. However, SPIDERS is not employing the traditional approach of first developing a control system and then overlaying security. Instead, security will be integrated into the system as it is developed. The result will be a comprehensive security solution that is tailored to the system, she offers.

The microgrid control system continually will monitor power quality and conditions in the regional power grid. If it detects instability or significant quality issues, it can alert monitors who would decide to disconnect the base from the external grid. The microgrid would continue to provide power to critical missions.

Johnson shares that planners are examining the relationship between the interface with the microgrid control system and the base’s enterprise network. Of particular interest is how that relationship would open the microgrid to vulnerabilities from outside the installation. Issues include the types of communications traffic that would be allowed in and out of the microgrid control system network.

According to its guidance, SPIDERS’ primary objectives are to protect task-critical assets from power loss due to cyberattack; integrate renewable and other distributed generational electricity to power task-critical assets in times of emergency; sustain critical operations during prolonged power outages; and manage installation electrical power consumption to reduce petroleum demand and carbon footprint.

SPIDERS will exploit existing energy assets such as solar arrays, wind generators and other renewable technologies as well as diesel generators to provide electricity more efficiently than if backup diesel generators alone were used. Renewable energy generators remain online constantly, providing electricity from alternate sources during opportune conditions such as windy or sunny days. Johnson points out, however, that most renewable energy resources trip offline when the main grid crashes. The microgrid allows the renewable power to stay online while maintaining necessary safety measures.

The program might tweak the bases’ energy sources by upgrading a legacy generator that lacks the necessary capacity, for example. Otherwise, it will focus on existing assets. Johnson emphasizes that SPIDERS will be energy-source agnostic.

#### This counterplan is a pre-empt to all their spacemil uniqueness arguments

**Manzo, 8** – CDI (Vince, “U.S. Policy Brief: The Need for a Strategic Dialogue with China,” 8/28, http://www.cdi.org/pdfs/StrategicDialoguePolicy.pdf)

A strategic dialogue between the United States and China is a necessary component of any effort to prevent the scenario described in the previous section. It will also reduce the risks of miscalculation and escalation if the U.S.-Chinese strategic balance does evolve along those lines, or along a different, less-predictable route. Therefore, prudence requires that the United States and China engage in serious discussions about their strategic capabilities now, before relations deteriorate or a crisis situation emerges. ¶ The Strategic Arms Limitation Treaty (SALT) negotiations between the United States and the Soviet Union are a useful example. It demonstrates that a sustained dialogue can help rival countries mitigate the inherent risks posed by the convergence of new weapon systems and uncertain bilateral relations. As Aaron Friedberg points out, “What the SALT process can do is help the competing superpowers mark some channels of cooperation in what must for the foreseeable future remain a sea of conflict. These channel markers can serve to restrain the flow of the strategic arms competition,deflecting its path periodically and warning the participants away from especially hazardous waters.”31 Career U.S. Foreign Service Officer Avis Bohlen offers a similar assessment of SALT. After acknowledging that SALT failed to resolve U.S.-Soviet political differences and dampen the arms race, she explains why SALT was still worthwhile: ¶ “[I]t nonetheless produced modest gains in transparency and predictability valued by military planners. Over time, the frontiers of the dialogue expanded, as the Soviets became

more open to exchanging data and discussing their strategic systems. To this extent, it made a modest contribution to regulating the arms race, while the institutionalization of the dialogue served to reinforce the reality of deterrence.”32 ¶ The United States and China have yet to participate in a similar process, and face a risk of miscalculation and escalation as a result. For instance, Roberts observes that United States and Chinese national security officials lack a shared conceptual framework: “American and Chinese experts do not have the common vocabulary or experience...akin to that which evolved in the U.S.-Soviet/Russian relationship.”33 China experts at NDU’s post-ASAT roundtable discussion made similar comments: “China does not share the U.S.-Soviet experience with arms control, deterrence, mutual satellite reconnaissance, or dealing with incidents at sea. The U.S. military has internalized these norms into its doctrine and operations, but China does not necessarily accept or share them.”34

### Grid

#### SMRs fail—too costly and slow

Dylan Ryan 11, Masters in Mechanical Engineering, expertise in energy, sustainability, Computer Aided Engineering, renewables technology; Ph.D. in solar energy systems, 2011, “Part 10 – Small modular reactors and mass production options,” http://daryanenergyblog.wordpress.com/ca/part-10-smallreactors-mass-prod/

So there are a host of practical factors in favour smaller reactors. But what’s the down side? Firstly, economies of scale. With a small reactor, we have all the excess baggage that comes with each power station, all the fixed costs and a much smaller pay-off. As I noted earlier, even thought many smaller reactors are a lot safer than large LWR’s (even a small LWR is somewhat safer!) you would still need to put them under a containment dome. It’s this process of concrete pouring that is often a bottle neck in nuclear reactor construction. We could get around the problem by clustering reactors together, i.e putting 2 or 4 reactors not only on the same site but under the same containment dome. The one downside here is that if one reactor has a problem, it will likely spread to its neighbours. How much of a showstopper this fact is depends on which type of reactors we are discussing.

Also, in the shorter term small reactors would be slower to build, especially many of those we’ve been discussing, given that they are often made out of non-standard materials. Only a few facilities in the world could build them as the entire nuclear manufacturing industry is currently geared towards large LWR’s. Turning that juggernaut around would take decades. So by opting for small reactors while we’d get safer more flexible reactors, we be paying for it, as these reactors would be slower to build (initially anyway) and probably more expensive too.

#### Zero impact to grid failures, even ones caused by cyber attacks

Douglas Birch 10-1, former foreign correspondent for the Associated Press and the Baltimore Sun who has written extensively on technology and public policy, 10/1/12, “Forget Revolution,” Foreign Policy, http://www.foreignpolicy.com/articles/2012/10/01/forget\_revolution?page=full

Government officials sometimes describe a kind of Hieronymus Bosch landscape when warning of the possibility of a cyber attack on the electric grid. Imagine, if you will, that the United States is blindsided by an epic hack that interrupts power for much of the Midwest and mid-Atlantic for more than a week, switching off the lights, traffic signals, computers, water pumps, and air conditioners in millions of homes, businesses, and government offices. Americans swelter in the dark. Chaos reigns!

Here's another nightmare scenario: An electric grid that serves two-thirds of a billion people suddenly fails in a developing, nuclear-armed country with a rich history of ethnic and religious conflict. Rail transportation is shut down, cutting off travel to large swathes of the country, while many miners are trapped underground.

Blackouts on this scale conjure images of civil unrest, overwhelmed police, crippled hospitals, darkened military bases, the gravely injured in the back of ambulances stuck in traffic jams.

The specter of what Defense Secretary Leon Panetta has called a "digital Pearl Harbor" led to the creation of U.S. Cyber Command, which is tasked with developing both offensive and defensive cyber warfare capabilities, and prompted FBI Director Robert Mueller to warn in March that cyber attacks would soon be "the number one threat to our country." Similar concerns inspired both the Democrats and Republicans to sound the alarm about the cyber threat in their party platforms.

But are cyber attacks really a clear and present danger to society's critical life support systems, capable of inflicting thousands of casualties? Or has fear of full-blown cybergeddon at the hands of America's enemies become just another feverish national obsession -- another of the long, dark shadows of the 9/11 attacks?

Worries about a large-scale, devastating cyber attack on the United States date back several decades, but escalatedfollowing attacks on Estonian government and media websites during a diplomatic conflict with Russia in 2007. That digital ambush was followed by a cyber attack on Georgian websites a year later in the run-up to the brief shooting war between Tbilisi and Moscow, as well as allegations of a colossal, ongoing cyber espionage campaign against the United States by hackers linked to the Chinese army.

Much of the concern has focused on potential attacks on the U.S. electrical grid. "If I were an attacker and I wanted to do strategic damage to the United States...I probably would sack electric power on the U.S. East Coast, maybe the West Coast, and attempt to cause a cascading effect," retired Admiral Mike McConnell said in a 2010 interview with CBS's 60 Minutes.

But the scenarios sketched out above are not solely the realm of fantasy. This summer, the United States and India were hit by two massive electrical outages -- caused not by ninja cyber assault teams but by force majeure. And, for most people anyway, the results were less terrifying than imagined.

First, the freak "derecho" storm that barreled across a heavily-populated swath of the eastern United States on the afternoon of June 29 knocked down trees that crushed cars, bashed holes in roofs, blocked roads, and sliced through power lines.

According to an August report by the U.S. Department of Energy, 4.2 million homes and businesses lost power as a result of the storm, with the blackout stretching across 11 states and the District of Columbia. More than 1 million customers were still without power five days later, and in some areas power wasn't restored for 10 days. Reuters put the death tollat 23 people as of July 5, all killed by storms or heat stroke.

The second incident occurred in late July, when 670 million people in northern India, or about 10 percent of the world's population, lost power in the largest blackout in history. The failure of this huge chunk of India's electric grid was attributed to higher-than-normal demand due to late monsoon rains, which led farmers to use more electricity in order to draw water from wells. Indian officials told the media there were no reports of deaths directly linked to the blackouts.

But this cataclysmic event didn't cause widespread chaos in India -- indeed, for some, it didn't even interrupt their daily routine. "[M]any people in major cities barely noticed the disruption because localized blackouts are so common that many businesses, hospitals, offices and middle-class homes have backup diesel generators," the New York Timesreported.

The most important thing about both events is what didn't happen. Planes didn't fall out of the sky. Governments didn't collapse. Thousands of people weren't killed. Despite disruption and delay, harried public officials, emergency workers, and beleaguered publics mostly muddled through.

The summer's blackouts strongly suggest that a cyber weapon that took down an electric grid even for several days could turn out to be little more than a weapon of mass inconvenience.

That doesn't mean the United States can relax. James Lewis, director of the technology program at the Center for Strategic and International Studies, believes that hackers threaten the security of U.S. utilities and industries, and recently penned an op-ed for the New York Times calling the United States "defenseless" to a cyber-assault. But he told Foreign Policy the recent derecho showed that even a large-scale blackout would not necessarily have catastrophic consequences.

### New Advantage

#### Incoherent—forward bases use petroleum because there’s no grid

**Sarewitz and Thernstrom 2012** – \*Co-Director, Consortium for Science, Policy and Outcomes, Arizona State University, \*\*Senior Climate Policy Advisor, Clean Air Task Force (March, Daniel and Samuel, “Energy Innovation at the Department of Defense: Assessing the Opportunities”, http://bipartisanpolicy.org/sites/default/files/Energy%20Innovation%20at%20DoD.pdf)

Alternative Fuels

Liquid fuels are indispensable for the U.S. military. Nuclear ¶ reactors power submarines and aircraft carriers; otherwise ¶ the Navy’s ships run on petroleum. So do all types of aircraft, ¶ trucks, and combat vehicles. Military installations buy electrical ¶ power, when they can, from local utilities, but diesel generators ¶ provide essential backup—and are the main power source at ¶ forward bases that lack grid connections. Direct consumption ¶ of petroleum accounted for more than three-quarters of DoD’s ¶ energy use in fiscal 2010, costing $13.4 billion.¶ 11

Even so, given adequate forward planning, DoD has little ¶ reason to fear constraints on supply of petroleum-based fuels ¶ for several decades, perhaps many. A tightening international ¶ oil market, resulting in continuing price increases, would pose ¶ greater difficulties for other segments of the U.S. economy and ¶ society, and for other countries. DoD’s expenditures on fuel may ¶ seem large, but should be viewed in the context of other routine ¶ expenditures. Even for the Air Force, the principal consumer with ¶ its fleet of nearly 6,000 planes, fuel accounts for only around ¶ one-fifth of operations and maintenance costs.¶ 12

#### Can’t forward deploy SMRs—too many risks

**Smith 2011** (2/16, Terrence, CSIS, “An Idea I Can Do Without: “Small Nuclear Reactors for Military Installations””, http://csis.org/blog/idea-i-can-do-without-small-nuclear-reactors-military-installations, WEA)

The proposed solution: small nuclear reactors that (in many of the proposed plans) are “self-contained and highly mobile.” This would allow the military to use them in forward bases and pack ‘em up and move ‘em out when we are done. But in an era where the U.S. is engaged in global fights with our bases often placed in unfriendly neighborhoods, the idea of driving around nuclear reactors and material (particularly through areas that have “ a fragile civilian electrical grid”) hardly seems like the idea of the century to me.¶ The report counters that “some” designs promise to be “virtually impervious to accidents” and have design characteristics that “might” allow them to be proliferation-resistant. The plans that use low-enriched uranium, sealed reactor cores, ect., do make them a safer option that some current designs of larger nuclear reactors, but, again, if we are going to be trucking these things around the world, when it comes to nuclear material a “might” doesn’t sit well with me.

#### COIN fails either way

**FULK ’11** (Lt. Col. Baucum; Lt. Col. – U.S. Army Reserve and Senior Service College Fellow – Fletcher School of Law and Diplomacy – Tufts University, “An Evaluation of Counterinsurgency as a Strategy for Fighting the Long War,” Carlisle Paper, March, <http://www.strategicstudiesinstitute.army.mil/pdffiles/pub1052.pdf>)

The single greatest national security question currently facing the U.S. National Command Authority is how best to counter violent extremism. The National Command Authority has four broad strategies through which it may employ military forces to counter violent extremism: counterinsurgency, counterterrorism, support to insurgency, and antiterrorism. The Long War is anticipated to continue for decades, perhaps generations. Thus, it is imperative to select the best strategy or strategies for employing military forces. Based on historical lessons in combating terrorism, the best strategy is efficient and sustainable and avoids overreacting, acting incompetently, or appearing to be either over reactive or incompetent.

Counterinsurgency is neither efficient nor sustainable from a military, economic, or political perspective. It is a high risk strategy because it is a large, highly visible undertaking through which the United States may easily overreact, act incompetently, or be perceived as overreacting or being incompetent. Counterterrorism, support to insurgency, and antiterrorism are each both efficient and sustainable from a military and economic perspective. These three strategies each have inherent political concerns, hazards, or constraints. However it is considerably less likely that the United States will overreact, behave incompetently, or be perceived as overreacting or being incompetent through engaging in one or more of these three strategies than by engaging in counterinsurgency. Support to insurgencies is economically and militarily efficient and sustainable, but it carries substantial political risks. Thus, an overall strategy combining counterterrorism and antiterrorism is the best means of employing military forces to counter violent extremism.

#### No escalation

**FULK ’11** (Lt. Col. Baucum; Lt. Col. – U.S. Army Reserve and Senior Service College Fellow – Fletcher School of Law and Diplomacy – Tufts University, “An Evaluation of Counterinsurgency as a Strategy for Fighting the Long War,” Carlisle Paper, March, <http://www.strategicstudiesinstitute.army.mil/pdffiles/pub1052.pdf>)

In short, it is possible that COIN might reduce al Qaeda’s access to the weapons that could most harm the United States, but that has not been the case so far. COIN is most useful in unstable second or third world countries, countries that are not apt to possess WMD, WMD production infrastructure, and accompanying delivery systems necessary to strike the United States. Personnel with the skills to build and use WMD within the United States or to launch cyber attacks against the United States are also rare in the areas counterinsurgencies are fought. Thus, as a general proposition, COIN is unlikely to deny al Qaeda the weapons that would most harm the United States.

#### No supply risk

Daniel Sarewitz 12, Co-Director, Consortium for Science, Policy and Outcomes, Arizona State University; and Samuel Thernstrom Senior Climate Policy Advisor, Clean Air Task Force, March 2012, “Energy Innovation at the Department of Defense: Assessing the Opportunities,” http://bipartisanpolicy.org/sites/default/files/Energy%20Innovation%20at%20DoD.pdf

Liquid fuels are indispensable for the U.S. military. Nuclear reactors power submarines and aircraft carriers; otherwise the Navy’s ships run on petroleum. So do all types of aircraft, trucks, and combat vehicles. Military installations buy electrical power, when they can, from local utilities, but diesel generators provide essential backup—and are the main power source at forward bases that lack grid connections. Direct consumption of petroleum accounted for more than three-quarters of DoD’s energy use in fiscal 2010, costing $13.4 billion.11

Even so, given adequate forward planning, DoD has little reason to fear constraints on supply of petroleum-based fuels for several decades, perhaps many. A tightening international oil market, resulting in continuing price increases, would pose greater difficulties for other segments of the U.S. economy and society, and for other countries. DoD’s expenditures on fuel may seem large, but should be viewed in the context of other routine expenditures. Even for the Air Force, the principal consumer with its fleet of nearly 6,000 planes, fuel accounts for only around one-fifth of operations and maintenance costs. 12 In Afghanistan and Iraq, fuel and water have made up 70 percent (by weight) of the supplies delivered to forward areas. 13 Transport convoys have drawn frequent and deadly attacks, but the only way to reduce risks, casualties, and delivery costs is to cut consumption (of water as well as fuel)—not something that alternative fuels can promise. Alternative fuels might have somewhat lower energy densities than petroleum (less energy content per gallon or per pound), meaning somewhat more fuel would have to be burned for the same power output, but not higher (by any significant amount). Indeed, alternative fuels cannot promise performance advantages of any sort.

## 2nc

### link uniqueness

#### DOE SMR grants haven’t been appropriated by Congress yet

Jeffrey Tomich 12, energy and environment reporter for the St. Louis Post-Dispatch, 4/25/12, “Small nuclear reactors generate hype, questions about cost,” http://www.stltoday.com/business/local/small-nuclear-reactors-generate-hype-questions-about-cost/article\_39757dba-8e5c-11e1-9883-001a4bcf6878.html#ixzz1tTlcQ1Jt

Last month, Obama proposed $452 million to help speed up development of small modular reactors. The funding availability would come on top of $8 billion in loan guarantees for the Vogtle twin-reactor nuclear project in Georgia.

The federal funding, which has yet to be appropriated by Congress, would support engineering, design certification and licensing of up to two plant designs that have the potential to be licensed and in commercial operation in a decade.

### perm

#### They create the perception that the NSP is a hollow statement

**Samson 10** – Secure World Foundation Washington Office Director (Victoria, “The 2010 Obama Space Policy: Sustainability, International Engagement and Stability in Space,” Secure World Foundation, Sept. 29, 2010, http://swfound.org/media/1759/obama\_spacepolicy\_analysis\_vs.pdf)

The Obama administration's new NSP clearly identifies the core challenges and priorities of space security and sustainability for the United States and provides the policy framework to allow the United States to deal with those challenges. **However, much depends on how the branches of the U.S.** government **carry out the mandates** presented in the new NSP. The Space Posture Review, being worked on at present by the Department of Defense and the Office of the Director of National Intelligence, will provide some insight on how the United States intends to implement the NSP’s guidelines when the Space Posture Review is released, potentially later this year.

The Obama administration’s Fiscal Year 2012 budget request, scheduled for release in early February 2011, will give some indication of the programmatic actions that can result from the new NSP. Efforts by the State Department will further illustrate whether or not the United States is truly serious about international cooperation or if Washington is only paying lip service to the concept.

The NSP sets the stage for potentially long-lasting effects that will allow the world to continue enjoying benefits from space. As the international space community continues to move towards creating and sustaining a stable outer space environment, it has the opportunity to use the NSP as both a guide post and as a starting point for international discussions for how best to do so. This major opportunity should not be bypassed.

#### Cooperation is reversible – the US is closely watched for signs that it might deviate from its National Space Policy

**Grego, 10 –** senior scientist, UCS Global Security Program (Laura, “Next Steps for the United States” 12/15,

http://www.ucsusa.org/assets/documents/nwgs/space-security-next-steps-for-united-states-lgrego.pdf)

While this administration’s National Space Policy has many of the elements that we find essential, namely, emphasizing international cooperation rather than unilateral action, reaffirming that all countries have the same rights to the peaceful use of space, and it begins the process of taking a more balanced view of commercial, civil, and military uses of space. It does, perhaps necessarily, lack some important detail and leave some important questions unanswered. For example, while advocating for the responsible use of space, it does not yet identify what “responsible” means. While it advocates for TCBMs, it misses an opportunity to make an important confidence building measure by strongly supporting and reinforcing long-held norms against stationing weapons in space and against disabling or destroying satellites. While the NSP made many welcome changes in policy, the rest of the world is watching carefully to see evidence that these changes are durable.

#### The perm distorts any positive message of the agreement

**Freese 6** (Strategic Communication with China: What message about space?, China Security. Vol. 1, No. 2 (2006): 37-57 ,Joan Johnson-Freese, chair of the Department of National Security Studies at the Naval War College since August 2002, http://www.wsichina.org/space/attach/CS2\_4.pdf)

The United States says it is interested in working with China “as a global partner.” Yet actions don’t match words when in functional areas such as space, it maintains a strategy that the United States might characterize as hedging, but many see as containment,38 trying to ignore the Chinese regarding cooperation in space while the other nations of the world are falling all over themselves to engage China. China, on the other hand, is making it clear it is open to cooperation. In fact, at the first International Association for the Advancement of Space Joan Johnson-Freese ~53~ Safety (IAASS) conference, held in Nice, France, in October 2005, an official from the government-run China Aerospace & Science Corporation (CASC) offered an open invitation to international cooperation on Chinese programs during a presentation. So, while engaging in a dialogue of ideas between people and institutions is one of the four fundamental premises of strategic communication, the United States has summarily rejected that premise regarding China and space. The message from the United States is clear in that regard. Whether it is the right message, however, is increasingly doubtful. In other areas, regarding U.S. intentions in space and the U.S. view of Chinese space activities, the message is less clear. The United States seems to be almost schizophrenic in denying any intentions regarding space weapons on one hand and having Air Force officials boast of their accomplishments and gee-whiz programs in that area, based on no apparent requirement, on the other. Further, holding and widely publicizing a space war game with China as the obvious ‘enemy’ could be interpreted as indicating U.S. plans. Was that the intent? Moreover, the United States makes arguments that come across as hypocritical. When the United States pursues certain technologies, remote sensing and communications, for example, it is for connectivity in a global world. When China pursues similar technology, nefarious intent is assumed because of its Communist government. In the area of smallsat and microsat technology, the pursuance of programs like the XSS is presented in the United States as defensive, while China’s small satellite program is viewed as an obvious step to developing an offensive ASAT capability. Even Chinese manned space activities are viewed by conservative analysts in the United States as inherently for military gain, though the United States was unable to capitalize on a manned program for military gain except indirectly and NASA has not been immune to the Pentagon imposing itself on its programs. Finally, the United States has made it clear that it is not interested in space arms control – while China and Russia have led the world in obtaining a majority vote at the United Nations – where the United States once again comes across as holding a position diametrically opposed to world opinion, and once again appears to focus on military answers to all questions of international relations. Consequently, it seems that China may currently hold a global advantage over the United States regarding strategic communications on space. Although U.S. policymakers may presume that as a democracy, U.S. intentions are inherently viewed as benign, opinion polls show this is a false presumption. While the United States may see itself as Han Solo or Obi-Wan Kenobi, much of the rest of the world, including China, hears the eerie voice of Darth Vader when the United States speaks of its plans in space.

### overview

#### Pre-emption

**Englehart, 8** – patent litigation attorney (Alex, “COMMON GROUND IN THE SKY: EXTENDING THE 1967 OUTER SPACE TREATY TO RECONCILE U.S. AND CHINESE SECURITY INTERESTS,” 17 Pac. Rim L. & Pol'y J. 133, lexis)

D. An Effective U.S. Space Weapons Deployment Would Neutralize the Effectiveness of ICBMs and Create a Powerful Incentive for Nuclear Preemptive Strikes

In addition to the strategic interplay between space-based weapons and ASATs discussed above, n54 space-based weapons would have a major impact on the effectiveness of ICBMs, n55 the mainstay weapons of the second half of the twentieth century. ICBMs armed with nuclear warheads have been the primary guarantor of mutually assured destruction since their inception in the 1960s--any use of ICBMs against another country also equipped with them would lead to massive retaliation in kind. n56 The threat of mutual annihilation kept the peace between the superpowers during the Cold War and has continued to preserve stability among powerful nations up to the present day. n57 Even in today's so-called "uni-polar" world, Russia and China maintain vast quantities of weapons of mass destruction that serve as  [\*140] a strong deterrent to any potential adversary considering an attack. n58 Unfortunately, with **the development** of space-based weapons, especially missile interceptors, this stability would be eviscerated. n59Space-based interceptors would be accurate and fast enough to reliably shoot down ICBMs in flight. n60 If one country possessed space-based interceptors, it would effectively neutralize the ICBMs of all other countries, allowing it to use its own ICBMs with relative impunity. n61

If the United States starts to deploy space-based interceptors that can shoot down ICBMs, China will face enormous internal pressure to at least consider the idea of launching a massive nuclear first strike. n62This is because once a robust space-based interceptor system is deployed, the United States would have essentially unlimited power to dictate terms to China on any matter it chooses--China would be at the absolute mercy of the United States. n63 China would have a limited window of time in which to use its ICBMs before they became worthless in the face of orbiting interceptors, and it could very well feel compelled to do so in order to avoid the total collapse of its strategic nuclear deterrent. n64

E. Beyond the Inevitable Direct Harm to Sino-American Relations, the Deployment of Space Weapons Would Inflame Russia and Drive It into a Closer Relationship with China  
Even though Russia is now much weaker than the Soviet Union of the Cold War era, n65 it still has thousands of ICBMs, n66 and the United States should carefully consider the ramifications of its planned space weapons deployment in light of that reality. n67 Russia's opinion cannot be ignored. n68 While it may not be capable of effectively deploying space-based weapons in the near to mid-term, it may well have an operational ASAT capability n69 and, in any case, its ICBMs demand respect. n70 Like China, Russia depends  [\*141]  on its ICBM capability to maintain its international respect. By being able to threaten any potential adversary with nuclear annihilation, Russia maintains its strength and independence in a changing world. n71 Also like China, Russia is understandably worried about the American pursuit of space weapons, which have the potential to undermine the effectiveness of ICBMs. n72

Russia has long been a strategic player in the space weapons arena. In the late 1970s, the United States and the Soviet Union entered into negotiations on an ASAT ban, but the discussions fell apart before any agreement was reached. n73 Ever since, the Soviet Union (later Russia) has been wary of American plans to deploy any kind of weapon in space or further pursue ASAT capabilities. n74 The Strategic Defense Initiative under the Reagan administration--a predecessor to twenty-first century American space weapons programs--arguably hastened the collapse of the Iron Curtain. n75 The actual deployment of satellite-based weapons in the coming decades is sure to inflame Russia and drive it further away from the United States.

**Makes space unusable**

**Forden, 8** - Massachusetts Institute of Technology (Geoffrey, Astropolitics, 6:138–153, “VIEWPOINT: CHINA AND SPACE WAR,” Ebsco Political Science)

If the short-term military consequences to the U.S. were not that bad, the long term consequences to all spacefaring nations would be devastating. The destruction of the nine satellites hit during the first hour of the attack considered here could put approximately 19,000 new pieces of debris over 10 cm in diameter into the most populated belt of satellites in LEO. Even more debris would be put into GEO, if China launched an attack against communications satellites. In the immediate aftermath of the attack, the debris from each satellite would continue to clump together, much as the debris from China’s 2007 test. Over the next year or so, and assuming the space war with China was resolved well before that, the debris fields would fan out and eventually strike other satellites. These debris fields could cause a run-away chain of collisions that renders space unusable from hundreds to thousands of years.14

#### Turns cyber-war

**Donahue, 10** – USAF Major (Jack, “CATASTROPHE ON THE HORIZON: A SCENARIO-BASED FUTURE EFFECT OF ORBITAL SPACE DEBRIS,” <https://www.afresearch.org/skins/rims/q_mod_be0e99f3-fc56-4ccb-8dfe-670c0822a153/q_act_downloadpaper/q_obj_af691818-359f-4999-be24-f88ca154bd94/display.aspx?rs=enginespage>)

Another unpredictable driving force that needs to be considered is adversary exploitation of space vulnerabilities via the cyber domain. Through cyberspace, enemies (both state and non-state actors) will target industry, academia, government, as well as the military in the air, land, maritime, and space domains.86 One of the easiest ways to disrupt, deny, degrade, or destroy the utility of space assets is to attack or sabotage the associated ground segments through cyberspace.87 The ground segment includes telemetry, tracking, and commanding of space assets and space-launch functions. Ground stations are an extremely critical piece of a satellites continued operation. However, many satellite tracking and control stations are lightly guarded and many satellite communications, launch, data reception, and control facilities are described in numerous open-source materials making the ground segment extremely vulnerable to cyber attack.88 An attack on a fixed ground facility can stop data transmission, render launch facilities unusable, and prevent control of satellites.89 Thus, rendering affected orbiting satellites inoperative from the communication disruption and creating a risk to other active satellites and a potential for additional orbital debris. A single incident or a small number of incidents could significantly impact space systems for years.90

#### Turns heg on shorter timeframe

**Hitchens** **02** (Theresa Hitchens, , CDI Vice President, April 18 “Weapons in Space: Silver Bullet or Russian Roulette? The Policy Implications of U.S. Pursuit of Space-Based Weapons”, http://www.cdi.org/missile-defense/spaceweapons.cfm)

China and Russia long have been worried about possible U.S. breakout on space-based weaponry. Officials from both countries have expressed concern that the U.S. missile defense program is aimed not at what Moscow and Beijing see as a non-credible threat from rogue-nation ballistic missiles, but rather at launching a long-term U.S. effort to dominate space. Both Russia and China also are key proponents of negotiations at the UN Conference on Disarmament to expand the 1967 Outer Space Treaty to ban all types of weapons. The effort to start talks known as PAROS, for "prevention of an arms race in outer space," has been stalled due in large part to the objection of the United States. For example, in November 2000, the United States was one of three countries (the others were Israel and Micronesia) to refuse to vote for a UN resolution citing the need for steps to prevent the arming of space. It is inconceivable that either Russia or China would allow the United States to become the sole nation with space-based weapons. "Once a nation embarks down the road to gain a huge asymmetric advantage, the natural tendency of others is to close that gap. An arms race tends to develop an inertia of its own," writes Air Force Lt. Col. Bruce M. DeBlois, in a 1998 article in Airpower Journal. Chinese moves to put weapons in space would trigger regional rival India to consider the same, in turn, spurring Pakistan to strive for parity with India. Even U.S. allies in Europe might feel pressure to "keep up with the Joneses." It is quite easy to imagine the course of a new arms race in space that would be nearly as destabilizing as the atomic weapons race proved to be. **Such** a strategic-level space race **could have negative consequences for U.S. security** in the long run **that would outweigh the obvious** (and tremendous) **short-term advantage of being the first** with space-based weapons. There would be direct economic costs to sustaining orbital weapon systems and keeping ahead of opponents intent on matching U.S. space-weapon capabilities — raising the proverbial question of whether we would be starting a game we might not be able to win. (It should be remembered that the attacker will always have an advantage in space warfare, in that space assets are inherently static, moving in predictable orbits. Space weapons, just like satellites, have inherent vulnerabilities.) Again, the price tag of space weapons systems would not be trivial — with maintenance costs a key issue. For example, it now costs commercial firms between $300 million and $350 million to replace a single satellite that has a lifespan of about 15 years, according to Ed Cornet, vice president of Booz Allen and Hamilton consulting firm. Many experts also argue there would be costs, both economic and strategic, stemming from the need to counter other asymmetric challenges from those who could not afford to be participants in the race itself. Threatened nations or non-state actors might well look to terrorism using chemical or biological agents as one alternative. Karl Mueller, now at RAND, in an analysis for the School of Advanced Airpower Studies at Maxwell Air Force Base, wrote, "The United States would not be able to maintain unchallenged hegemony in the weaponization of space, and while a space-weapons race would threaten international stability, it would be even more dangerous to U.S. security and relative power projection capability, due to other states' significant ability and probably inclination to balance symmetrically and asymmetrically against ascendant U.S. power." Spurring other nations to acquire space-based weapons of their own, especially weapons aimed at terrestrial targets, would certainly undercut the ability of U.S. forces to operate freely on the ground on a worldwide basis — negating what today is a unique advantage of being a military superpower.

### link

#### The lack of prior consultation means the plan is read in the worst possible light

**Garretson 09** (Peter Garretson, Transformational Air and Space Power Strategist, International Fellowship with the Council on Foreign Relations, “Elements of a 21st Century Space Policy,” The Space Review, August 3, 2009, <http://www.thespacereview.com/article/1433/1>)

While policy is a necessary enabling framework to communicate restrictions and freedom of action to internal audiences, it is also a powerful external communication to our friends and allies. Whether rightly or wrongly, as a result of what the world perceived the larger unstated intentions of our last President, or the greater context of the perceived unilateralism of the period, the tone of the 2006 space policy was taken and received in such a way that it cost America in influence and freedom of action, and put us on the defensive. The first criteria of any new space policy is that it must be read by our allies and partners as measured, consultative, and inclusive, and provides no wedge for our adversaries to diminish the moral bonds with those partners and the uncommitted. Every phrase should be guided by the advice of Parag Khanna: “First, channel your inner JFK. You are president, not emperor. You are commander in chief and also diplomat in chief. Your grand strategy is a global strategy, yet you must never use the phrase ‘American national interest.’ (It is assumed.) Instead talk about ‘global interests’ and how closely aligned American policies are with those interests. No more ‘us’ versus ‘them,’ only ‘we.’ That means no more talk of advancing ‘American values’ either. What is worth having is universal first and American second.”

#### This makes us seem unpredictable and malicious

**Sabathier et. al 6**— senior associate with the CSIS Technology and Public Policy Program and former senior fellow and director of CSIS space initiative (September 18, 2oo6 ,Vincent G. Sabathier, D.A. Broniatowski, G. Ryan Faith, Center for Strategic and International Studies, “The Case for Managed International Cooperation in Space Exploration”, http://csis.org/files/media/csis/pubs/060918\_managed\_international\_cooperation.pdf , FS)

International cooperation is valuable to a given nation in that it tends to increase political sustainability. Within the United States, a program is made safer from cancellation to the extent that Congress and the administration are not willing to break international agreements. Indeed, the integration of Russia into the ISS program may well have saved the program from cancellation (consider that the year before Russia was introduced as a partner, the ISS was saved by one vote in Congress). Once cooperation has commenced, canceling a program becomes inconsistent with political sustainability as long as the utility cost associated with the loss of diplomatic benefits and the negative effects on reputation of terminating an international agreement is larger in magnitude than the utility cost that must be paid to maintain the system. In the case of the ISS, international cooperation does provide a rationale for sustaining the pro-gram, because canceling the program would result in a net loss in utility. The corollary to this is that there is a high cost to be paid by any nation that chooses to unilaterally withdraw from an existing cooperative endeavor. This cost comes in the form of damage to the departing nation’s reputation or credibility. In general, any unilateral action sends a signal that the actor is an unpredictable and therefore an unreliable and possibly disrespectful partner. This tends to sabotage the possibility of future cooperation. As such, there is a long-term benefit to maintaining cooperation, even when the immediate cost may seem to call for terminating it. If cooperation has never occurred (as is the case be-tween China and the United States), the advent of cooperation is a significant event, likely delivering a lot of diplomatic utility. On the other hand, if cooperation is the norm (as is the case between Canada and the United States), it is to be expected. The diplomatic utility of maintaining this cooperation is often not recognized. Nevertheless, the diplomatic utility cost of terminating this cooperation is large, because it would alienate a key ally. If it were necessary to cease cooperation, a mutual choice to do so would likely mitigate many of the negative reputation effects, because there would be no unilateral actor to whom one could assign blame. Indeed, if both parties choose to cease cooperat-ing simultaneously, this would mitigate the negative-reputation effect—rather, there would be a “mutual divorce.” Such a mutual decision would be significantly more tenable, in a diplomatic sense, because each party might outline a set of grievances and conditions for the termination of cooperation. Furthermore, since the agreement would be termi-nated in a spirit of mutual understanding, the possibility of future beneficial cooperation would be more likely.

#### Budget link

**Fukushima 11** — National Institute for Defense Studies (February, 2011, Yasuhito, Space Policy, “An Asian perspective on the new US space policy: The emphasis on international cooperation and its relevance to Asia” Vol. 27, Issue 1, Science Direct, FS)

Leveraging the increasing opportunities to work together with other countries is not the only aim of the NSP. The changing environment of space activities has pressured the USA into undertaking a more intensified policy of international cooperation. One reason the USA needs cooperation is closely connected to the fear of weakening US primacy in space. Along with the USSR (Russia), the USA has been the leading space power and, especially after the Soviet breakup, it has enjoyed a huge advantage in this field. In 2009 it is estimated that the US government space budget ($64.42 billion) accounted for a quarter of the global space economy ($261.61 billion) and about three-quarters of aggregate world government space budgets ($86.17 billion).5 The current US primacy in space is, however, no longer secure and is challenged by budget pressures and growing competition. The push for more budget cuts is especially apparent in the national security space sector. In June 2010 Defense Secretary Robert M. Gates announced his intention to save over $100 billion of the defense budget over a five-year period starting from fiscal year 2012 and this is where the space-related budget is expected to suffer.6 In addition, the proliferation of space activities has intensified heated competition in space. For example, the US Global Positioning System (GPS) has been widely used as the “gold standard” for space-based positioning, navigation and timing (PNT) and generated huge positive economic effects.7 Nevertheless, other countries have recently been preparing their own global navigation satellite systems (GNSS). Russia is rebuilding its Glonass constellation, which aims to be fully operational by the end of 2010.8 European countries are funding the Galileo system, which is scheduled to be partially operational in 2014.9 China is also constructing the Beidou/Compass system, which is intended to achieve global coverage by around 2020.10 These systems are designed to be dual-use and are sure to have great impact on related markets. Under these circumstances the USA is attempting to maintain its primacy in space by utilizing increased international cooperation and collaboration. Michael Nacht, the Assistant Secretary of Defense for Global Affairs, stated in May 2010 that expectations of flat to declining military space budgets in the next couple of years is the motivation for enhancing international cooperation.11 Furthermore, while space is becoming a more competitive domain where other nations are increasing their presence, the USA seems to be aiming to shape the direction of global space activities in its favor and to expand its market opportunities through cooperation with other nations. In the case of space-based PNT, the new NSP stipulates that, for the purpose of maintaining US leadership in this area, the country shall “engage with foreign GNSS providers to encourage compatibility and interoperability, promote transparency in civil service provision, and enable market access for US industry.”

#### It will be deployed—Air Force wants to, they just need small reactor tech

Puiu 12 Tibi Puiu – Studies Mechanical Engineering, Feb 23, 2012 “Air Force plans buildings a solar power station in space and nuclear-powered spacecraft”

http://billionyearplan.blogspot.com/2012/08/air-force-plans-buildings-solar-power.html

Last week, the U.S. Air Force released a report in which it outlines its technological and energy plans for the forthcoming 15 years. Among others, the Air Force means to deploy a space-based solar power station, which would serve energy wirelessly to both Earth and space satellites, as well as a new generation of spacecraft powered by **small nuclear reactors.**¶ This solar power satellite design features sets of lightweight, inflatable fresnel reflectors to focus the Sun's energy on small arrays of high-efficiency photovoltaic cells. (c) NASA¶ The 72-page long report, titled “Energy Horizons: United States Air Force Energy S&T Vision 2011-2026″, can be read in its entirety for thus curious enough here. It discusses measures the institution plans to meet in order to reach its energy goals, reduce demand and change military culture in sight of rapidly developing missions.¶ “Energy is a center of gravity in war and an assured energy advantage can enable victory,” said Mark Maybury, chief scientist for the United States Air Force. He spearheaded the report.¶ “While **energy is** already **an essential enabler**,” Maybury said. “Global competition, environmental objectives and economic imperatives will only increase its importance.”¶ Of great interest, is a solar-based power station, which would harness solar energy and then beam it to Earth using lasers. The technology necessary to effectively transfer energy between space and Earth isn’t available at the moment, however, so my guess is the Air Force has in mind distributing it towards satellites, whether they belong to the Air Force, NASA or other national security agencies. Air Force is currently limited to 27 kilowatt (kW) arrays for satellite power. In the future, it intends to massively increase its space energy array, which would also allow them to build smaller spacecraft, as they wouldn’t need to generate power for themselves. Also, sensors, communications equipment and on-board processing devices generally require a lot of energy, and if you want to have a very powerful satellite, destined for space-based radar or space-based laser missions, you need to provide it somehow. It would all be wireless transmitted from the neighboring space power station.¶ Nuclear-powered spacecraft¶ When nuclear energy is concerned, there are already some satellites powered by Radioisotope Thermoelectric Generators (RTG), which provide steady and reliable power, at a much greater output than other technologies currently in place. However, the Air Force wants to take it up a notch and employ satellites powered by small nuclear reactors. We’ve discussed about nuclear fission power plants, small enough to fit in a briefcase, in one of our past posts – I’m guessing the Air Force is going for something similar. Of course, safety is a major concern, as outlined in the report.

#### Our link is specific to military SMRs—other programs don’t apply

Downey, 4 (Lt. Col.-USAF, April, “Flying Reactors: The Political Feasibility of Nuclear Power in Space,” http://www.dtic.mil/dtic/tr/fulltext/u2/a425874.pdf)

The report also emphasizes the necessity for superior United States space based intelligence, surveillance and reconnaissance (ISR), and for space control. While missions envisioned under these drivers do not absolutely need SNP, any simple analysis demonstrates that they would benefit by using nuclear power because of its intrinsic advantages. Direct costs would fall, and mission effectiveness would be enhanced by a **small**, light, **compact**, long lived **system that provided** both ample electrical power and **thrust** for on-orbit maneuver. **If DOD enters the** SNP **business, though, a major shift will occur**. **Instead of the few, rare** SNP **system launches that NASA would execute primarily for deep space missions, DOD missions would necessitate that SNP operations become commonplace**. It is easy to envision constellations of nuclear powered satellites in orbit. One candidate system would be advanced space based radar, or perhaps a system with a mix of active and passive hyper-spectral sensors. Regular SNP operations in low earth orbit would add a new dimension to the public’s perception of risk. They would also require a different imperative to establish an effective public engagement process about the political feasibility of SNP before there is a need to increase the number of operational SNP platforms. In addition, SNP systems in orbit around the Earth will certainly be of concern to numerous international stakeholders.

#### High level military advisory boards agree—SMRs are uniquely suited to space weaponization

Leonard David (columnist for Space Insider) February 2012 “Air Force Eyes Nuclear Reactors, Beamed Power for Spacecraft” http://www.space.com/14643-air-force-space-nuclear-reactors-power-beaming.html

The U.S. Air Force has laid out a new vision for its energy science and technology needs over the next 15 years – a forecast that includes plans for space-based power stations and the prospective use of small nuclear reactors for new spacecraft. The report, entitled "Energy Horizons: United States Air ForceEnergy S&T Vision 2011-2026," focuses on core Air Force missions in space, air, cyberspace and infrastructure. A series of Air Force mission-focused workshops and summits were held to shape the new strategy. The report was released Feb. 9 and details how the Air Force plans to increase energy supply, reduce demand and change military culture to meet mission requirements "Energy is a center of gravity in war and an assured energy advantage can enable victory," said Mark Maybury, chief scientist for the United States Air Force. He spearheaded the report. "While energy is already an essential enabler," Maybury said. "Global competition, environmental objectives and economic imperatives will only increase its importance." Space is the "ultimate high ground," providing access to every part of the globe, including denied areas, the report explains. "Space also has the unique characteristic that once space assets reach space, they require comparatively small amounts of energy to perform their mission, much of which is renewable," it states. [Top 10 Space Weapons] Solar cell efficiencies In the sweeping report a number of desirable high-tech advances are mentioned. For example, the Air Force is currently limited to 27 kilowatt (kW) arrays for satellite power. But more power is required for some future space missions, the report states, such as flights currently being eyed by the Air Force, national security organizations and NASA. "Employing larger and more efficient arrays will enable missions that require very high power, such as space-based radar or space-based laser missions," the report states. In the long term, the report says, increased solar cell efficiencies and revolutionary materials foreshadow the potential of 500 kW on-orbit power generation technologies, "which would be transformational for performing missions from space-based systems." Furthermore, there are other breakthrough space energy technologies that have the potential of achieving up to 70 percent efficiency, the report adds. Examples include quantum dots and dilute nitrides in solar cells. But there are also totally new technologies such as space tethers that could harvest energy from the Earth's geomagnetic field. [Top 10 Alternative Energy Technologies] Space nuclear power In terms of nuclear power in space, several satellite systems have been energized by Radioisotope Thermoelectric Generators (RTG). This source provides consistent power, and at a much higher energy and power density than current technologies. **Work on small modular** nuclear **reactors** on Earth **is highlighted** in the Air Force report: "While the implementation of such a technology should be weighed heavily against potential catastrophic outcomes, many investments into small modular reactors can be leveraged for space-based systems. **As these nuclear power plants decrease in size, their utility on board space-based assets increases."** The report explains that the Air Force space systems portfolio should consider piloting small modular nuclear systems, a view previously recommended by the Air Force Scientific Advisory Board. Power beaming The Air Force report also delves into the wireless transfer of power, a technology that continues to offer big promises despite the daunting challenges involved in making it a reality. While there are many challenges in "space-to-earth" power beaming, "space-to-space power beaming" could be transformational, the report stresses. An energy-beaming benefit for the military is powering sets of fractionated, distributed satellite systems, the report explains. Doing so would enable spacecraft to be smaller, more survivable, and more capable than current systems. A power paradigm change In orbit, many spacecraft systems — sensors, communications equipment and on-board processing — can require intense amounts of power. Like all computing architectures, these systems are currently composed exclusively of silicon- based technology. However, decades of work has begun to change this paradigm, the report points out. Newer systems require less energy and offer a reduced thermal load in comparison to their silicon counterparts, the report adds. Advances in satellite propulsion are also spotlighted in the newly issued report. Today, the ability of space-based systems to alter their orbits is based on blasts of on-board fuel. The possibility of on-orbit refueling for these systems is now being studied.

#### The plan enables space weaponization

McCall 6 Chair, USAF Scientific Advisory Board, “Spacecraft Bus Technoligies,” http://www.au.af.mil/au/awc/awcgate/vistas/stechch3.pdf

All current spacecraft are either power limited or restricted in some measure by inadequate electrical power. Power limitations impose restrictions on the communications and propulsion subsystems and currently make large space-based radars and space-based weapons **relatively** unfeasible. A revolutionary change in capabilities will result from power technologies capable of providing large amounts of power onboard satellites. Large amounts of power will be enabling on spacecraft in the same sense that large amounts of random access memory have been enabling in personal computers. If power is not an issue, then previously hard applications become easy and new applications become possible. Evolutionary development of solar-array-based power technologies will see improvements to tens of kilowatts on satellites over the next decades. However, all solar collection systems in Earth orbit are limited by the solar constant of 1.4 kiloWatts per square meter. Large powers from solar collectors require large collection areas. For substantially larger powers (> 100 kW), several different types of technologies will have to be explored. Powers of this level will make large space-based radars, space-based directed energy weapons, and the use of high-performance electrically driven maneuvering technologies possible. **A natural technology to enable high power is nuclear power in space**; however, this technology has to date been considered unacceptable due to political and environmental limitations. Thus it is desirable to develop other technologies that may provide large power levels in space. In addition to continued development of safe **nuclear systems**, two other sources of continuous power in space that should be explored are the concepts of electrodynamic power-generating tethers and power beaming from one location to another (e.g., from space to space). The development of these and other technologies for high continuous power **will have a revolutionary effect** and the Air Force should invest in these areas as well as continuing to invest in solar collection technologies. Over the years, there have been several programs in nuclear powered spacecraft. NASA has been using Radioisotope Thermoelectric Generators (RTGs) for the interplanetary missions that generate a few tens of watts of power. Russia has flown nuclear reactors in space and BMDO has a joint program with the Russians (TOPAZ), under which the Defense department bought three of the reactors to do laboratory experiments. DoE had a program (SP 100) to use nuclear power in space and the Air Force had a nuclear propulsion program; these programs have been canceled. Nuclear power, however, remains one of the attractive alternatives in generating large amounts of power in space. To build a reactor for space applications has many challenging technical aspects including development of high-temperature lightweight materials, active cooling technologies, extremely radiation-hard and high-temperature electronics, and fail-safe system architectures. Setting the emotional issues of nuclear power aside, this technology offers a viable alternative for large amount of power in space. The Air Force should continue efforts towards making a safe nuclear reactor in space a viable option. Existing joint programs with Russia offer a low cost alternative and should be pursued. To build a reactor for space applications has many challenging technical aspects including development of high-temperature lightweight materials, active cooling technologies, extremely radiation-hard and high-temperature electronics, and fail-safe system architectures. Setting the emotional issues of nuclear power aside, this technology offers a viable alternative for large amount of power in space. The Air Force should continue efforts towards making a safe nuclear reactor in space a viable option. Existing joint programs with Russia offer a low cost alternative and should be pursued.

### space heg

#### Reverse bandwagoning

**Spacey 98** (Major William L. Spacy II (BS, United States Air Force Academy; MS, Air Force Institute of Technology; MA, United States College of Naval Command and Staff. “Does The United States Need Space-Based Weapons? By William L. Spacy Ii A Thesis Presented To The Faculty Of The School Of Advanced Airpower Studies For Completion Of Graduation Requirements.”)

Today, the United States is in the enviable position of being the only superpower to survive the Cold War. Many models of political interaction would predict that a nation with so much power would prompt other nations to form alliances against it.158 The fact that this has not happened is arguably a result of past U.S. **restraint** in exercising power. For instance, during the Cold War the United States allowed the other North Atlantic Treaty Organization members much more say in the structure of the organization and its decision-making processes than was necessary given their dependence on the U.S. nuclear umbrella.159 This reluctance to aggressively use military power to further U.S. interests has prompted other nations to trust that the United States will not abuse its military superiority. **A unilateral move to put weapons in space could undermine this trust.**

#### Destroys relations with all countries and prevents bandwagoning

**Krepon and Clary 3** \*Michael Krepon is the president of the Henry L. Stimson Center \*\*Christopher Clary is a research assistant at the Henry L. Stimson Center [<http://www.stimson.org/images/uploads/research-pdfs/spacebook.pdf>, “Space Assurance or Space Dominance?” 2003]

U.S. initiatives to “seize” the high ground of space are likely to be countered by asymmetric and unconventional warfare strategies carried out by far weaker states—in space and to a greater extent on Earth. In addition, U.S. initiatives associated with space dominance would likely alienate longstanding allies, as well as China and Russia, whose assistance is required to effectively counter terrorism and proliferation, the two most pressing national security concerns of this decade. No U.S. ally has expressed support for space warfare initiatives. To the contrary, U.S. initiatives to weaponize space would likely corrode bilateral relations and coalition-building efforts. Instead, the initiation of preemptive or preventive warfare in space by the United States based on assertions of an imminent threat—or a threat that cannot be ameliorated in other ways—is likely to be met with deep and widespread skepticism abroad.

#### Other countries will assume the worst

**Zhang 11** – Professor of Political Science and Director of the Center for Asia Pacific Studies @ Lingnan University, Hong Kong [Baohui Zhang, “The Security Dilemma in the U.S.-China Military Space Relationship,” Asian Survey, Vol. 51, No. 2 (March/April 2011), pp. 311-332)

This strategy of space dominance, however, generates the **classic security dilemma** between the U.S. and other countries**. Although the U.S. may be motivated by defensive purposes**, such as shielding the American population from nuclear weapons and other threats, **other countries have to assume the worst** in an anarchic world. As observed by Joan Johnson-Freese, “I would argue that the rest of the world accepts U.S. space supremacy. What the Bush Administration claims is **space dominance**, and that is what the rest of the world won’t accept.”17

### new adv

#### The DOD wants renewables

DOD 11 – Department of Defense, 7/11/11, “Department of Defense Strategic Sustainability Performance Plan,” http://www.acq.osd.mil/ie/download/green\_energy/dod\_sustainability/DoD%20SSPP%20Public\_2011.pdf

Relating specifically to the fixed installations under the purview of this Plan, a final challenge is grid ¶ vulnerability. DoD’s reliance on the commercial grid to deliver electricity to more than 500 major ¶ installations places the continuity of critical missions at risk. In general, installations lack the ability to ¶ manage their demand for and supply of electrical power, making them potentially vulnerable to ¶ intermittent or prolonged power disruption caused by natural disasters, attacks, or sheer overload of the ¶ grid. With the increasing reliance of U.S. combat forces on “reach back” support from installations in the ¶ United States, power failures at those installations could adversely affect power projection and homeland ¶ defense capability. This means that an energy threat to bases in the United States can be a threat to ¶ operations abroad. The Department is committed to renewable energy not only because it is dedicated to ¶ showing leadership in sustainability, but because it improves resilience and thus mission readiness.

Military installations are generally ¶ well situated to support solar, wind, ¶ geothermal and other forms of ¶ renewable energy, as long as the type ¶ of energy facility, its siting, and its ¶ physical and operational ¶ characteristics are carefully evaluated ¶ and mitigated as needed for any ¶ mission or readiness impacts. ¶ The Department continues to pursue ¶ an investment strategy designed to ¶ reduce energy demand in fixed ¶ installations, while increasing the ¶ supply of renewable energy sources. ¶ Efforts to curb demand for energy—¶ through conservation measures and ¶ improved energy efficiency—are by far the most cost-effective ways to improve an installation’s energy ¶ profile. A large fraction of DoD energy efficiency investments goes to retrofit existing buildings. Typical ¶ retrofit projects install high efficiency heating, ventilation and cooling systems, energy management ¶ control systems, improved lighting, and “green” roofs.

#### Err neg—their solvency advocates do not support forward deployed SMRs

**Andres**, Professor of National Security Strategy at the National War College **and, Breetz**, doctoral candidate in the Department of Political Science at The Massachusetts Institute of Technology, **11**

(Richard, Senior Fellow and Energy and Environmental Security and Policy Chair in the Center

for Strategic Research, Institute for National Strategic Studies, at the National Defense University, Hanna L., Feb, “Small Nuclear Reactors for Military Installations: Capabilities, Costs, and Technological Implications,” http://www.ndu.edu/inss/docuploaded/SF%20262%20Andres.pdf, accessed 9-15-12, CMM)

Small reactors used on domestic military bases are ¶ likely to face a number of additional siting hurdles. As a ¶ distributed energy source, they are likely to face substantial “not-in-my-backyard” battles. Moreover, dispersing a ¶ large number of reactors leads to questions about longterm nuclear waste disposal.¶ 27¶ Arguably, reactors should be ¶ relatively safe on domestic military installations, certainly ¶ more secure than, for instance, the reactors situated in developing countries or intended for processing tar sands. ¶ Nevertheless, no issue involving nuclear energy is simple. ¶ Institutional and technical uncertainties—such as the security of sealed modules, the potential and unintended ¶ social and environmental consequences, or the design of ¶ reliable safeguards—make dispersing reactors across the ¶ country challenging. Some key issues that require consideration include securing sealed modules, determining how ¶ terrorists might use captured nuclear materials, carefully ¶ considering the social and environmental consequences of ¶ dispersing reactors, and determining whether Permissive ¶ Action Links technology could be used to safeguard them

Using the emerging technology at expeditionary locations carries far greater risks. Besides the concerns outlined ¶ above, forward located reactors could be subject to attack. ¶ Today, forward operating bases in Iraq and Afghanistan ¶ are regularly subjected to mortar attacks, suggesting that ¶ reactors at such locations could make these bases prime ¶ targets for attack. Since forward bases are also subject to ¶ capture, any design proposal that envisions deployment ¶ at forward operating bases must incorporate contingency ¶ plans in the event that reactors fall into enemy hands.

#### SMRs won’t be deployed to forward bases unless they’re thorium—and that won’t happen

**Ackerman**, editor – Danger Room @ Wired, 2/18/**’11**

(Spencer, “Latest Pentagon Brainstorm: Nuke-Powered War Bases,” Danger Room)

Buried within Darpa’s 2012 budget request under the innocuous name of “Small Rugged Reactor Technologies” is a $10 million proposal to fuel wartime Forward Operating Bases with nuclear power. It springs from an admirable impulse: to reduce the need for troops or contractors to truck down roads littered with bombs to get power onto the base. It’s time, Darpa figures, for a “self-sufficient” FOB.

Only one problem. “The only known technology that has potential to address the power needs of the envisioned self-sufficient FOB,” the pitch reads, “is a nuclear-fuel reactor.” Now, bases could mitigate their energy consumption, like the solar-powered Marine company in Helmand Province, but that’s not enough of a game-changer for Darpa. Being self-sufficient is the goal; and that requires going nuclear; and that requires … other things.

To fit on a FOB, which can be anywhere from Bagram Air Field’s eight square miles to dusty collections of wooden shacks and concertina wire, the reactor would have to be “well below the scale of the smallest reactors that are being developed for domestic energy production,” Darpa acknowledges.

That’s not impossible, says Christine Parthemore, an energy expert at the Center for a New American Security. The Japanese and the South Africans have been working on miniature nuclear power plants for the better part of a decade; Bill Gates has partnered with Toshiba to build mini-nuke sites. (Although it’s not the most auspicious sign that one prominent startup for modular reactors suspended its operations after growing cash-light last month.) Those small sites typically use uranium enriched to about 2 percent. “It would be really, really difficult to divert the fuel” for a bomb “unless you really knew what you were doing,” Parthemore says.

But Darpa doesn’t want to take that chance. Only “non-proliferable fuels (i.e., fuels other than enriched uranium or plutonium) and reactor designs that are fundamentally safe will be required of reactors that may be deployed to regions where hostile acts may compromise operations.”

Sensible, sure. But it limits your options: outside of uranium or plutonium, thorium is the only remaining source for generating nuclear fuel. The Indians and now the Chinese have experimented with thorium for their nuclear programs, but, alas, “no one has ever successfully found a way” to build a functioning thorium reactor, Parthemore says, “in a safe and economical manner.”

For now, Darpa proposes to spend $10 million of your money studying the feasibility of the project. But it’s just one part of the researchers’ new push to green the military. Another $10 million goes to a project called Energy Distribution, which explores bringing down energy consumption on the FOBs. An additional $5 million will look at ways to keep fuel storage from degrading in extreme temperatures. For $50 million, Darpa proposes to build a turbine engine that uses 20 percent less energy.

But all of that is mere isotopes compared to the Nuclear FOB. Darpa appears to have thought about it a lot. It says it plans to work with the Department of Energy “to ensure that existing advanced reactor development activities are being exploited and/or accelerated as appropriate, based on the military’s needs.”

Still, if it can’t find the right non-proliferable fuel, it suggests that it might look to the “development of novel fuels.” Says a stunned Parthemore, “I have no idea why you’d want to bring that upon the world.”

#### Alternative methods don’t solve theater risks

**Bartis**, PhD chemical physics – MIT, senior policy researcher – RAND, and van Bibber, researcher – RAND, **‘11**

(James T. and Lawrence, “Alternative Fuels for Military Applications,” RAND Corporation)

Examples of forward-based concepts that require a feedstock include the following:¶ • An alternative fuel plant could be built on a barge that could be towed to a location¶ within or near the theater of operations and where natural gas is available.¶ Each floating plant could produce 10,000 to 20,000 bpd of fuel. If the floating¶ plant is sufficiently close to forward operating units, the produced fuel could be¶ transferred by helicopter; otherwise, it could be offloaded onto a Navy oiler.¶ • A small biomass-to-liquids plant could be built within or near a forward operating¶ base. The fuel plant could produce between a few hundred and as much as¶ 1,000 bpd using biomass delivered by local farmers.¶ While there are many variations of the above two cases and many in between, all of¶ the local-feedstock-based production concepts examined in this study present serious¶ operational, institutional, or logistical problems that significantly limit their military¶ utility, as compared to producing fuel outside of the theater of operations and shipping¶ that fuel to the theater of operations.¶ Floating Production¶ Large floating production facilities are vulnerable to attack and have limited application,¶ since appropriate feedstocks may not be available. There is no evidence that a floating production¶ facility would be less expensive than delivering finished military fuels produced¶ outside the zone of conflict.¶ For production levels of over 10,000 bpd, floating production plant concepts require¶ a barge that is roughly the size of an aircraft carrier. Putting a barge of this size in the¶ vicinity of or within a conflict zone would likely require protection by dedicated naval¶ assets. Most importantly, the concept has limited application. The concept for floating¶ production that has been most extensively examined involves jet and diesel fuel¶ production from natural gas via Fischer-Tropsch synthesis.1 Short-duration conflicts¶ would not support the time and expense necessary to bring the barge to theater, secure¶ a natural gas supply, and conduct equipment shakedown. There is also the question of¶ whether permission to access the needed natural gas feedstock at reasonable prices and¶ within a reasonable time would be granted by the nation (or nations) claiming ownership¶ of the natural resource. Such permission might be delayed due to political reasons,¶ but there are also valid economic and technical reasons. If the natural gas is already¶ being extracted, diversion to alternative liquids production would leave other applications¶ and customers without supplies. If the natural gas is in an undeveloped reservoir,¶ the owner nation may be concerned that a rush to production may preclude the reservoir¶ characterization and engineering necessary for sustainable production.¶ Finally, there is no evidence that a floating production plant would be less expensive¶ than using Navy oilers or commercial oil tankers to bring JP-8, JP-5, and diesel¶ fuel directly to forward-based oil depots. Production economics further suffer from the¶ need to produce a fairly narrow product slate, namely, middle distillates, which will¶ require extensive upgrading or flaring of light hydrocarbon liquids and gases. Also, a¶ production facility capable of producing roughly 10,000 bpd of fuel cannot sit idle¶ in storage and then be expected to operate when needed. When not deployed, such a¶ plant will need to be operated, and such operations could incur net annual losses.¶ Variations of this floating-barge production concept include using nuclear power¶ to provide hydrogen from water, using coal rather than natural gas, and using coproduced¶ water to meet the water needs of forward-based forces. So long as natural gas¶ is the feedstock, there would be no shortage of hydrogen, and therefore no benefit from¶ a nuclear source of hydrogen.¶ There would be no logistical advantages of using coal as the feedstock, even if¶ the coal were to come from a local source. We are aware of no credible analysis that¶ suggests that the costs of loading, unloading, storing, and processing coal in a mobile¶ facility would be less than the costs of transporting finished fuels produced outside the¶ zone of conflict.¶ While it is true that water can be a co-product of an FT gas-to-liquids plant, a¶ search of the literature reveals that there is no experience, globally speaking, in using¶ industrial wastewater for human consumption and very little experience in using industrial¶ wastewater for irrigation of food crops. Even if research revealed that such use would¶ be appropriate, significant water treatment and monitoring resources would be required¶ to ensure that appropriate water quality standards were continuously met.¶ Small-Scale Production¶ It is difficult to identify a credible operational scenario in which having forward-based¶ units carry and operate a small-footprint, modular alternative fuel plant would be an¶ asset. **The logistics and operational burden** of having forward-based units secure a carbon containing¶ feedstock **is greater than that of delivering finished fuels to those units.**¶Motivating interest in small-scale alternative fuel production concepts is the potential¶ to co-locate military fuel production with tactical units. Ongoing advances in chemical¶ microprocessing offer the possibility of designing small-footprint, modular alternative¶ fuel plants that can be delivered to or carried by a forward operating unit. Presumably, a tactical unit supported by such a plant would require less logistics support. In¶ situations in which logistics lines are at risk of attack, fewer fuel-delivery trucks means¶ fewer drivers at risk and fewer military assets dedicated to convoy security.¶ In our analysis of small-scale, forward-based military fuel production concepts,¶ we considered both technical viability and military utility. From a strictly technical¶ perspective, a number of the concepts being supported by DoD funds might be viable.2¶ From a military utility perspective, all of these concepts appear to place a logistical and¶ operational burden on forward-based tactical units that is well beyond that associated¶ with the delivery of finished military fuels, either synthetic or conventional, produced¶ outside the theater of operations. Specifically, all of these concepts require delivery of a¶ carbon-containing feedstock. For all known fuel conversion processes, the weight and¶ volume of the required feedstock deliveries would far exceed the weight and volume of¶ the fuel deliveries that would be displaced. Considering fuel-delivery issues, the diversion¶ of combat strength involved in protecting local extraction and delivery of feedstocks,¶ and the additional personnel required to deliver, set up, operate, and maintain a¶ forward-based military fuel production facility, **we have difficulty identifying credible**¶ **operational scenarios in which such a facility would be a military asset.**

#### Even if supply disruption happened we’d never let it affect heg, and other countries would be hit worse

John Alic 12, directed studies on international competitiveness and technology policy at the Congressional Office of Technology Assessment, adjunct at the Johns Hopkins School of Advanced International Studies, March 2012, “Defense Department Energy Innovation: Three Cases,” in Energy Innovation at the Department of Defense: Assessing the Opportunities, http://bipartisanpolicy.org/sites/default/files/Energy%20Innovation%20at%20DoD.pdf

In any event, should serious bottlenecks in fuel supplies appear, the United States will be less vulnerable than many other countries, including major allies. The U.S. government can expect to outbid competing customers, beginning with poor countries totally dependent on imported oil and including wealthy economies such as Japan that benefit from the U.S. security umbrella. So long as there is fuel to buy (or commandeer, in war), DoD will be better able to afford it than almost any other customer. The armed forces have first claim on the Strategic Petroleum Reserve. Household consumers and airlines have more to fear from supply constrictions and price rises than DoD.

## 1nr

### cp

King et al. 11 (Marcus King, Associate Director of Research at The George Washington University's Elliott School of International Affairs, with a concurrent appointment as Associate Research Professor of International Affairs, former Project Director and Research Analyst for the Environment and Energy Team at the Center for Naval Analyses; LaVar Huntzinger, Center for Naval Analyses, author of Market Analysis with Rational Expectations, Theory, and Estimation and other books; Thoi Nguyen, research staff at Center for Naval Analyses, March 2011, “Nuclear Power on Military Installations,” http://www.cna.org/sites/default/files/research/Nuclear%20Power%20on%20Military%20Installations%20D0023932%20A5.pdf)

Small nuclear power plants could contribute to electrical energy surety and survivability. Having nuclear power plants networked with the grid and other backup generating systems 5 could give DoD installations higher power availability during extemded utility power outages and more days of utility-independent operation. Existing large commercial nuclear power plants have an availability of over 90 percent. When a small nuclear power plant is networked with existing backup generating systems and the grid, overall availability values could be as high as 99.6 percent [39]. Since proposed small reactors have long refueling intervals (from 4 to 30 years), if power from the commercial grid became unavailable, a small reactor could provide years of electrical power independent of the commercial grid [4].

Power assurance to DoD installations also involves three infrastructure aspects of electricity delivery: electrical power transmission, electricity distribution, and electricity control (of distribution and transmission). Electric power transmission is the bulk transfer of electrical energy from generating plants to substations located near population centers. Electricity distribution networks carry electricity from the substations to consumers. Electricity control is the management of switches and connections to control the flow of electricity through transmission and distribution networks.

Typically, transmission lines transfer electricity at high voltages over long distances to minimize loss; electricity distribution systems carry medium voltages. For electrical power transmission, very little additional infrastructure is required to incorporate small nuclear power plants because they would be located on or near the DoD installation being serviced. However, redundancy in transmission lines would make the overall network more robust.

#### New investments in battery tech solve

**GAO, 12** (“BATTERIES AND ENERGY STORAGE Federal Initiatives Supported Similar Technologies and Goals but Had Key Differences” August, <http://www.gao.gov/assets/650/647742.pdf>)

Federal interest in batteries and other energy storage technologies has increased in recent years to help address key energy, defense, and space exploration challenges. According to the Department of Energy (DOE), enhancing these technologies contributes to more flexible and efficient control of the nation’s existing electric infrastructure, or grid (e.g., electricity networks including power lines and customer meters). For example, these technologies have the potential to facilitate greater use of intermittent renewable energy sources, such as wind and solar energy, on the grid. In addition, according to DOE, batteries are also critical to advancing electric vehicles that are commercially viable to help reduce U.S. oil consumption. 1 To address these challenges, DOE has devoted substantial resources in recent years to initiatives to support batteries and other energy storage technologies. For example, DOE awarded $185 million in funds made available under the 2009 American Recovery and Reinvestment Act (Recovery Act) to 16 projects that supported demonstrations of batteries and other energy storage technologies on the electric grid. In addition, we reported in December 2010 that the Department of Defense (DOD) has provided significant support for batteries and other energy storage technologies in recent years because virtually all DOD weapon systems and equipment rely on these technologies. 2For example, we reported that DOD invested about $260 million in science and technology efforts to develop and improve batteries from fiscal years 2006 through 2010. 3The National Aeronautics and Space Administration (NASA) also relies on and has invested in these technologies to help support space exploration missions because space craft, space stations, and astronaut space suits require power that can be supplied remotely. Several other federal agencies—including the National Science Foundation (NSF), and the Department of Commerce’s National Institute of Standards and Technology (NIST)—have also invested in initiatives to support research and development of these technologies.

#### Microgrids overcome intermittence

**Wamsted, 12 –** Dennis, “A Mission Critical Relationship”, Electric Perspectives, Nov/December, <http://www.eei.org/magazine/EEI%20Electric%20Perspectives%20Article%20Listing/2012-11-01-MISSIONCRITICAL.pdf>)

Renewables, which are both intermittent and variable, will not enhance installation energy security by themselves, however. Richard Kidd, Deputy Assistant Secretary of the Army for Energy and Sustainability, explained that it requires a microgrid to make it all work. “Microgrids are the backbone of the effort,” he said. “They will allow us to match the power supply with the mission. They are critical.”

As Robyn told the House panel: “Advanced microgrids are a ‘triple play’ for DOD’s installations. First, they will facilitate the incorporation of renewable and other onsite energy generation. Second, they will reduce installation energy costs on a day-to-day basis by allowing for load balancing and demand response.… Most important, the combination of onsite energy and storage, together with the microgrid’s ability to manage local energy supply and demand, will allow an installation to shed nonessential loads and maintain mission-critical loads if the grid goes down.”

#### More reasons:

#### a) Bases are perfectly suited for renewables

Dr. Dorothy Robyn 10, Deputy Under Secretary of Defense for Installations and Environment, 1/27/10, Statement before the Senate Homeland Security and Governmental Affairs Committee, Subcommittee on Federal Financial Management, Government Information, Federal Services and International Security, http://www.acq.osd.mil/ie/download/robyn\_testimony\_27jan10.pdf

With respect to fixed installations, the Department has pursued a two-part investment strategy that is designed to (1) reduce the demand for traditional energy while (2) increasing the supply of renewable energy sources. In addition to the Department’s military construction budget, financing for these investments has come from our Energy Conservation Investment Program, Energy Savings Performance Contracts and mechanisms such as Enhanced Use Leases and Power Purchase Agreements.

Efforts to curb demand—through conservation measures and improved energy efficiency—are by far the most cost-effective way to improve an installation’s energy profile. A large fraction of our energy efficiency investments go to retrofit existing buildings; typical retrofit projects install high efficiency HVAC systems, energy management control systems, new roofs and improved lighting. We are also taking advantage of new construction to incorporate more energy efficient designs, material and equipment, using LEED Silver standards as a guide. From 2005 to 2008, we reduced the energy intensity of our facilities by 11 percent through conservation and investment in energy efficiency.

On the supply side, military installations—which are large and disproportionately located in the Southwest and on our coasts—are well-situated to support solar, wind, geothermal and other forms of renewable energy. For example, Nellis Air Force Base in southern Nevada built a 14- megawatt (MW) photovoltaic solar array using a public-private partnership. More than 72,000 solar panels track the sun to generate 30 million kilowatt-hours of electricity per year— equivalent to a quarter of the total power used at the 12,000-person base. Nellis saves $1 million a year in electricity costs and avoids 24,000 tons of carbon dioxide emissions. In October, the U.S. Army Corps of Engineers signed an agreement with two private companies to develop a 500-MW solar power plant at Fort Irwin in California’s Mojave Desert. The plant will be built using an Enhanced Use Lease—a mechanism that allows the private partners to finance the estimated $1.5 billion in capital costs. The military’s interest in renewable energy is nothing new. Naval Air Weapons Center China Lake in California has been operating a 270-MW geothermal plant since 1987. The heat from 166 wells, some of them 12,000 feet deep, is sufficient to light up 180,000 homes. The Navy is helping the Army tap into geothermal resources at its Weapons Depot in Hawthorne, Nevada, and that project will be capable of producing 30 MW of clean power.

#### b) On-site renewables are feasible everywhere, and DOD leadership makes the tech viable

Schuyler Null 10, Research Assistant at Global Green USA's Security and Sustainability Program, February 2010, “Defense Sustainability: Energy Efficiency and the Battlefield,” http://www.globalgreen.org/docs/publication-112-1.pdf

Many of the initiatives, technologies, and systems that have the potential to greatly improve Department of Defense energy security are either entirely new practices for the military or involve technologies that are tied up in ongoing systems development and demonstration (SDD) contracts. As with many military projects, these efforts need Congressional support and the backing of senior Pentagon leadership if they are to ever break out of the often perpetual development and demonstration phase and into regular DOD practice. If the Department is to curb its consumption habits senior Pentagon leadership must place focus on these four critical areas.

The advantages to the Department encouraging on-site renewable energy projects on domestic bases are all gains that accrue over time— freedom from the volatility of oil prices, much lower maintenance costs, a cleaner environment, and reduced impact on global warming. Much like how the fully burdened cost of fuel program aims to one day show that petroleum-based tactical vehicles carry with them costs that are not simply reflected by the price of gasoline, renewable energy solutions have advantages over conventional power generation that a basic price per kilowatt-hour comparison will not show. The Department’s current REC purchasing policy uses a simple short-term cost/benefit analysis and therefore ignores these long-term advantages. As a result, the Pentagon’s current domestic energy practices greatly undervalue the worth of renewable energy. DOD has the land (see Appendix for Army renewable energy maps), the funding, and the mandate to put into place renewable energy construction projects on domestic bases that could provide reliable clean energy and even improved security for decades to come. All that is needed is leadership.

One of the most important advantages to developing DOD-run renewable projects is their potential to decrease the Department’s dependence on the civilian energy grid. The Defense Science Board and the DOD Energy Security Task Force have both recognized that a key vulnerability in current practices is that Defense Department facilities are simply far too dependent on a power grid, which, as illustrated by events like the Northeast blackout during the summer of 2003, is remarkably fragile. 57 During the Northeast blackout, 50 million people lost power and over 250 power plants shut down including 22 nuclear power plants. The massive blackout turned out to be the result of a cascade of failures that was eventually traced to a utility in Ohio failing to trim trees properly. 58 Currently, Department of Defense facilities across the nation are no more immune to the effects of such blunders than anyone else.

By encouraging the on-site development of renewable energy, the Pentagon could greatly increase its bases’ protection against possible disruptions to the civilian power infrastructure. “Islanding” DOD sites in this way ensures that the nation’s most critical security facilities would have reliable power generation available on-site in case of any catastrophic disruption. There has been some recognition of this problem but efforts to fix the substantial vulnerability of most sites have so far been far too limited and scattered. An emphasis on encouraging the development of DOD-run renewable power projects across the county could provide a reliable counter to the Department’s current reliance on the civilian grid while also insulating the domestic energy budget from fluctuations in world energy markets and making a considerable dent in Department carbon emissions.

#### c) None of their ev assumes DOD leadership---improves next-gen renewables

Dr. Dorothy Robyn 12, Deputy Under Secretary of Defense for Installations and Environment, 3/27/12, Testimony before the Senate Appropriations Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, Congressional Documents & Publications, lexis

As the discussion of microgrids illustrates, one of the ways DoD can lower its energy costs and improve its energy security is by leveraging advanced technology. Technology has been DoD's comparative advantage for 200 years, as evidenced by the military's leadership in the development of everything from interchangeable machine made parts for musket production to the Internet. This advantage is no less important when it comes to facility energy.

To leverage advanced technology relevant to facility energy, three years ago my office created the Installation Energy Test Bed, as part of the existing Environmental Security Technology Certification Program (ESTCP). The rationale is straightforward. Emerging technologies offer a way to cost effectively reduce DoD's facility energy demand by a dramatic amount (50 percent in existing buildings and 70 percent in new construction) and provide distributed generation to improve energy security. Absent outside validation, however, these new technologies will not be widely deployed in time for us to meet our energy requirements. Among other problems, the first user bears significant costs but gets the same return as followers. These barriers are particularly problematic for new technologies intended to improve energy efficiency in the retrofit market, which is where DoD has the greatest interest.

As the owner of 300,000 buildings, it is in DoD's direct self-interest to help firms overcome the barriers that inhibit innovative technologies from being commercialized and/or deployed on DoD installations. We do this by using our installations as a distributed test bed to demonstrate and validate the technologies in a real-world, integrated building environment.8 Projects conduct operational testing and assessment of the life cycle costs of new technology while addressing DoD unique security issues. For example, the Test Bed is doing a demonstration of an advanced control system that could increase boiler efficiency by 10 percent; if the technology proves out, DoD can deploy it on thousands of boilers and see a meaningful energy savings. More generally, by centralizing the risk and distributing the benefits of new technology to all DoD installations, the Test Bed can provide a significant return on DoD's investment.

#### Their HNS cites David chalk’s opinion who knows nothing about smart grid technology

Bochman, 12 [I'm a frequent speaker, writer and adviser on topics at the intersection of grid modernization, renewables, energy efficiency. military energy and cyber security. Also, I:, Friday, April 20, 2012

Absurd David Chalk Smart Grid Security Talk , http://smartgridsecurity.blogspot.com/2012/04/absurd-david-chalk-smart-grid-security.html]

¶ Absurd David Chalk Smart Grid Security Talk ¶ I know I tend to respond, Pavlovian dog style, when awful stuff like this pops up, but I can't help it. Perhaps you've seen [THIS](http://www.youtube.com/watch?feature=player_embedded&v=2c1sadZCO60) already, as Jesse Berst wrote a post around it on his widely read SmartGridNews site. Purported Canadian security expert David Chalk is saying to anyone who will listen (and that's a lot of people) that there's a "100% certainty of catastrophic failure of the energy grid within 3 years." Chalk's eight-minute, Smart Grid snuff film has all the requisite apocalyptic theatrics of a political attack ad. It shows light bulbs exploding in slow motion, shaky images of the 2007 DHS Aurora attack demonstration already posted on Youtube ([HERE](http://www.youtube.com/watch?v=fJyWngDco3g) again if you like), and the following "Smart Grid Facts":¶ Completely Hackable¶ Bills Going Up¶ Privacy cost¶ Health Issues¶ Fires¶ Democracy Gone?¶ Beyond Chalk and the apparently unhinged [Citizens for Safe Technology](http://citizensforsafetechnology.org/), **not sure who benefits from this craziness.** But it seems to be another odd thing for the media to shine a light on, attract moths and eyeballs, and spur less-than-lucid conversation. The video concludes with a message that solar power is the one proven path to the world's energy salvation and away from the sure perils of the Smart Grid. As SGSB readers and many others already know, the current grid isn't well suited to handle large amounts of intermittent cleantech power.¶ ¶ Since one of the drivers for deploying Smart Grid tech is to allow wider use of wind and solar, Chalk and [fellow film-makers](http://thepowerfilm.org/), please figure out what you want. And please do so in private.

### Grid Defense

#### We don’t have to prove that a cyber attack is impossible, just that high costs will cause enemies to seek alternatives

**Rid**, reader in war studies – King's College London, and McBurney, professor – Agents and Intelligent Systems Group – Department of Informatics @ King's College, **‘12**

(Thomas and Peter, “Cyber-Weapons,” The RUSI Journal Volume 157, Issue 1, p. 6-13)

A thorough conceptual analysis and a detailed examination of the empirical record corroborates our hypothesis: developing and deploying potentially destructive cyber-weapons against hardened targets will require significant resources, hard-to-get and highly specific target intelligence, and time to prepare, launch and execute an attack. Attacking secured targets would probably require the resources or the support of a state actor; terrorists are unlikely culprits of an equally unlikely cyber-9/11. The scant empirical record also suggests that the greatest benefit of cyber-weapons may be using them in conjunction with conventional or covert military strikes, as Israel did when it blinded the Syrian air defence in 2007. This leads to a second conclusion: the cost-benefit payoff of weaponised instruments of cyber-conflict may be far more questionable than generally assumed: target configurations are likely to be so specific that a powerful cyber-weapon may only be capable of hitting and acting on one single target, or very few targets at best. The equivalent would be a HARM missile that can only destroy one unique emitter, not a set of targets emitting at the same frequency. But in contrast to the missile – where only the seeker needs to be specifically reprogrammed and the general aviation and propulsion systems remain functional – the majority of modular components of a potent cyber-weapon, generic and specific, would have a rather short shelf-life after discovery.

Two findings contravene the debate's received wisdom. One insight concerns the dominance of the offence. Most weapons may be used defensively and offensively. But the information age, the argument goes since at least 1996, has ‘offence-dominant attributes’.37 A 2011 Pentagon report on cyberspace again stressed ‘the advantage currently enjoyed by the offense in cyberwarfare’.38 But when it comes to cyber-weapons, the offence has higher costs, a shorter shelf-life than the defence, and a very limited target set.39 All this drastically reduces the coercive utility of cyber-attacks. Any threat relies on the offender's credibility to attack, or to repeat a successful attack. Even if a potent cyber-weapon could be launched successfully once, it would be highly questionable if an attack, or even a salvo, could be repeated in order to achieve a political goal. At closer inspection cyber-weapons do not seem to favour the offence.

A second insight concerns the risk of electronic arms markets. One concern is that sophisticated malicious actors could resort to asymmetric methods, such as employing the services of criminal groups, rousing patriotic hackers, and potentially redeploying generic elements of known attack tools. Worse, more complex malware is likely to be structured in a modular fashion. Modular design could open up new business models for malware developers. In the car industry, for instance,40 modularity translates into a possibility of a more sophisticated division of labour. Competitors can work simultaneously on different parts of a more complex system. Modules could be sold on underground markets. But if our analysis is correct, potential arms markets pose a more limited risk: the highly specific target information and programming design needed for potent weapons is unlikely to be traded generically. To go back to our imperfect analogy: paintball pistols will continue to be commercially available, but probably not pre-programmed warheads of smart missiles.

#### Grid threats are hype

**Sorebo**, chief cybersecurity technologist and vice president – SAIC, consultant for the government and industry in cybersecurity and smart grid technology, MA – GW University, JD – Catholic U, 2/8/**’10**

(Gib, “The Many Shades of Project Grey Goose,” RSA Conference)

As I noted in my previous post about a recent 60 Minutes segment, we often rely on rumor and innuendo as the basis for journalism in critical infrastructure. If a current or former high-ranking public official says he heard something, then it must be true. Unfortunately, Project Grey Goose, whose stated objective was “to answer the question of whether there has been any successful hacker attacks against the power grid, both domestically and internationally,” falls victim to much of the same **fear, uncertainty, and doubt.** As in all media reports, there are factual bases for findings that exaggerated the true state of the electric grid. For example, their statement that “90% of the U.S. Department of Defense's (DOD) most critical assets are entirely dependent on the bulk power grid” is presumably taken from a Government Accountability Office (GAO) report noting that 85 percent of critical DoD assets rely on commercial electric power. However, the “entirely dependent” statement ignores the wide variety of backup generators that support these assets, and while not adequate, are nonetheless a significant contribution to the reliability of critical DoD assets. So rather than sounding the alarm that military bases, for the most part, do not have their own power plants, a better response would have been to suggest that the military expand the use of backup generators and micro-grid technology to augment commercial power as the GAO report does. Of course, that would not grab as many headlines.

Similarly, the Grey Goose Report note that “[m]ost Grid asset owners and operators have been historically resistant to report cyber attacks against their networks as well as make the necessary investments to upgrade and secure their networks.” While it may be true that incidents are underreported, the implication that the electricity industry is deficient compared to other industrial sectors is misleading or even wrong. Most companies do not report security incidents unless legally required to or to mitigate the harm to their customers, and even then the evidence of an intrusion and theft of data had better be definitive. Lost laptops and backup tapes are one thing. You cannot say they are within your control if they go missing. However, organizations in general have a horrible record of even detecting when a successful attack has occurred let alone what was taken. Like many industries, the electricity industry has struggled to pinpoint the source of many disruptions associated with their network infrastructure. **More often than not, the problems were inadvertent and not malicious.** We can certainly do better, and with technologies like Smart Grid, we have to. However, calling out the electricity industry for failures that we’ve all been subjected to is not very productive.

The other statements made about the vulnerabilities in the electricity sector are misleading. While North American Electric Reliability Corporation Critical Infrastructure Protection (NERC CIP) still does not apply to many aspects of the electrical grid for a variety of jurisdictional reasons, where it does apply, it is not voluntary, as the many utilities subjected to rigorous and painful audits can attest. The process may not be perfect, but utilities are being subjected to scrutiny. Moreover, anyone receiving stimulus grants under the Department of Energy’s Smart Grid grant program has to demonstrate a very rigorous approach to cyber security through the entire implementation life cycle.

Finally, the report cites a litany of vulnerabilities discovered in various Smart Grid devices such as meters and perpetuates speculation about the potential impact on the grid without considering compensating security controls. **Nowhere does the report cite names of vulnerable vendors** nor does it provide any information about whether these vulnerable products have actually been implemented. It’s like saying that tests on personal computers showed that they were vulnerable to attack without identifying the operating system or the applications running on the device.

#### Status quo solves the entire advantage

**Aimone, 9/12**/12 - Director Business Enterprise Integration Office of the Deputy Under Secretary of Defense (Installations and Environment) (Michael, Congressional Testimony, http://homeland.house.gov/sites/homeland.house.gov/files/Testimony%20-%20Aimone.pdf)

DoD’s facility energy strategy is also focused heavily on grid security in the name of mission assurance. Although the Department’s fixed installations traditionally served largely as a platform for training and deployment of forces, in recent years they have begun to provide direct support for combat operations, such as unmanned aerial vehicles (UAVs) flown in Afghanistan from fixed installations here in the United States. Our fixed installations also serve as staging platforms for humanitarian and homeland defense missions. These installations are largely dependent on a commercial power grid that is vulnerable to disruption due to aging infrastructure, weather-related events, and potential kinetic, cyber attack. In 2008, the Defense 2 Science Board warned that DoD’s reliance on a fragile power grid to deliver electricity to its bases places critical missions at risk. 1

Standby Power Generation

Currently, DoD ensures that it can continue mission critical activities on base largely through its fleet of on-site power generation equipment. This equipment is connected to essential mission systems and automatically operates in the event of a commercial grid outage. In addition, each installation has standby generators in storage for repositioning as required. Facility power production specialists ensure that the generators are primed and ready to work, and that they are maintained and fueled during an emergency. With careful maintenance these generators can bridge the gap for even a lengthy outage. As further back up to this installed equipment, DoD maintains a strategic stockpile of electrical power generators and support equipment that is kept in operational readiness. For example, during Hurricane Katrina, the Air Force transported more than 2 megawatts of specialized diesel generators from Florida, where they were stored, to Keesler Air Force Base in Mississippi, to support base recovery.

Next Generation Microgrids

Although the Department will continue to maintain its fleet of on-site and mobile backup generators, we are moving aggressively to adopt next generation microgrids. Advanced microgrids, combined with on-site energy generation (e.g., solar or geothermal) and energy storage, offer a more robust and cost effective approach to ensuring installation energy security than the current solution (backup generators). Although microgrid systems are in use today, they are relatively unsophisticated, with limited ability to integrate renewable and other distributed energy sources, little or no energy storage capability, uncontrolled load demands, and “dumb” distribution that is subject to excessive energy losses. By contrast, we envision advanced (or “smart”) microgrids as local power networks that can utilize distributed energy, manage local energy supply and demand, and operate seamlessly both in parallel to the grid and in “island” mode. Advanced microgrids are a “triple play” for DoD’s installations: First, they will facilitate the incorporation of renewable and other on-site energy generation. Second, they will reduce installation energy costs on a day-to-day basis by allowing for load balancing and demand response—i.e., the ability to curtail load or increase on-site generation in response to a request from the grid operator. Third, and most importantly, the combination of on-site energy and storage, together with the microgrid’s ability to manage local energy supply and demand, will allow an installation to shed non-essential loads and maintain mission-critical loads if and when the grid goes down.

DoD’s Installation Energy Test Bed, run out of the Department’s Installations and Environment office, is funding ten demonstrations of microgrid and storage technologies to evaluate the benefits and risks of alternative approaches and configurations. The Test Bed is working with multiple vendors so as to allow DoD to capture the benefits of competition. Demonstrations are underway at Twentynine Palms, CA (General Electric’s advanced microgrid system); Fort Bliss, TX (Lockheed Martin); Joint Base McGuire-Dix-Lakehurst, NJ (United Technologies); Fort Sill, OK (Eaton); and several other installations.

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#### The administration hasn’t announced the recipients or begun handing out grants precisely because of the link to politics

Gabriel Nelson 9-24, E&E Reporter, and Hannah Northey, 9/24/12, “DOE funding for small reactors languishes as parties clash on debt,” http://www.eenews.net/public/Greenwire/2012/09/24/3

DOE received four bids before the May 21 deadline from veteran reactor designers Westinghouse Electric Co. and Babcock & Wilcox Co., as well as relative newcomers Holtec International Inc. and NuScale Power LLC. Now the summer has ended with no announcement from DOE, even though the agency said it would name the winners two months ago.

As the self-imposed deadline passed, companies started hearing murmurs that a decision could come in September, or perhaps at the end of the year. To observers within the industry, it seems that election-year calculations may have sidelined the contest.

"The rumors are a'flying," said Paul Genoa, director of policy development at the Nuclear Energy Institute, in an interview last week. "All we can imagine is that this is now caught up in politics, and the campaign has to decide whether these things are good for them to announce, and how."

Small modular reactors do not seem to be lacking in political support. The nuclear lobby has historically courted both Democrats and Republicans and still sees itself as being in a strong position with key appropriators on both sides of the aisle.

Likewise, top energy officials in the Obama administration have hailed the promise of the new reactors, and they haven't shown any signs of a change of heart. DOE spokeswoman Jen Stutsman said last week that the department is still reviewing applications, but she did not say when a decision will be made.

"This is an important multiyear research and development effort, and we want to make sure we take the time during the review process to get the decision right," she wrote in an email.

That the grants haven't been given out during a taut campaign season, even as President Obama announces agency actions ranging from trade cases to creating new national monuments to make the case for his re-election, may be a sign that the reactors are ensnared in a broader feud over energy spending.

Grant recipients would develop reactor designs with an eye toward eventually turning those into pilot projects -- and the loan guarantees that these first-of-a-kind nuclear plants are using today to get financing would be blocked under the "No More Solyndras" bill that passed the House last week (Greenwire, Sept. 14).