# 1NC

## OFF

"Financial incentives for energy production" involve the exchange of money for production.

Book 11 [Managing Director, ClearView Energy Partners, LLC]

Kevin, Testimony before U.S. HOUSE COMMITTEE ON WAYS AND MEANS,

SUBCOMMITTEES ON SELECT REVENUE MEASURES AND OVERSIGHT, SEPTEMBER 22, http://waysandmeans.house.gov/UploadedFiles/Booktestimony922.pdf

Incentive cost ratios, implied abatement costs and implied displacement costs offer three possible ways to measure the performance of federal financial incentives for energy production and consumption. Metrics of this sort could be used to prioritize spending – dynamically, perhaps through a reverse auction – or through legislated formulas that balance incentives for high-yield, low-cost sources with high-potential, emerging sources. Fuels or technologies that consistently fall short of established benchmarks may require a different type of government financial intervention (e.g. manufacturing assistance or pre-competitive R&D in place of production tax credits) or a different mode of financial support (e.g. loan guarantees instead of tax credits or deductions).

For is a term of exclusion – requiring direct action upon.

US CUSTOMS COURT 39 AMERICAN COLORTYPE CO. v. UNITED STATES C. D. 107, Protest 912094-G against the decision of the collector of customs at the port of New York UNITED STATES CUSTOMS COURT, THIRD DIVISION 2 Cust. Ct. 132; 1939 Cust. Ct. LEXIS 35

The same reasons used by the appellate court may be adopted in construing the language of the statute herein involved. If the words "for industrial use" mean no more than the words "articles of utility," there could be no reason for inserting the additional words "for industrial use" in the paragraph. Therefore, it must be held that the [\*135] new language "for industrial use" was intended to have a different meaning from the words "articles of utility," as construed in the case of Progressive Fine Arts Co. v. United States, [\*\*8] supra. Webster's New International Dictionary defines the word "industrial" as follows: Industrial. 1. Relating to industry or labor as an economic factor, or to a branch or the branches of industry; of the nature of, or constituting, an industry or industries \* \* \* . The transferring of the scenes on an oil painting to a printed copy is a branch of industry under the definition above quoted. Some of the meanings of the preposition "for" signify intent, as shown by the following definition in the same dictionary: For. 2. Indicating the end with reference to which anything is, acts, serves, or is done; as: a. As a preparation for; with the object of; in order to be, become, or act as; conducive to. \* \* \*. d. Intending, or in order, to go to or in the direction of. Therefore, the words "articles for industrial use" in paragraph 1807 imply that Congress intended to exclude from that provision articles either purchased or imported with the intention to use the same in industry for manufacturing purposes.

Energy Production distinct from material production, transport & waste treatment.

Is Cumulative Fossil Energy Demand a Useful Indicator for the Environmental Performance of Products? M A R K A . J . HUIJBREGTS , \* , † L I N D A J . A . R O M B O U T S , † S T E F A N I E H E L L W E G , ‡ R O L F F R I S C H K N E C H T , § A . J A N H E N D R I K S , † D I K V A N D E M E E N T , † , | A D M . J . R A G A S , † L U C A S R E I J N D E R S , ⊥ A N D J A A P S T R U I J S | Department of Environmental Science, Institute for Wetland and Water Research, Faculty of Science, Radboud University Nijmegen, P.O. Box 9010, NL-6500 GL Nijmegen, The Netherlands, Institute for Chemical- and Bioengineering, Swiss Federal Institute of Technology Zu¨rich, CH-8093 Zu¨rich, Switzerland, Ecoinvent Centre, Ueberlandstrasse 129, CH-8600 Duebendorf, Switzerland, Laboratory for Ecological Risk Assessment, National Institute of Public Health and the Environment, P.O. Box 1, NL-3720 BA, Bilthoven, The Netherlands, and Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, Nieuwe Achtergracht 166, NL-1018 WV, Amsterdam, The Netherlands 2006 American Chemical Society VOL. 40, NO. 3, 2006 / ENVIRONMENTAL SCIENCE & TECHNOLOGY 9 641 http://pubs.acs.org/doi/pdf/10.1021/es051689g

The appropriateness of the fossil Cumulative Energy Demand (CED) as an indicator for the environmental performance of products and processes is explored with a regression analysis between the environmental life-cycle impacts and fossil CEDs of 1218 products, divided into the product categories “energy production”, “material production”, “transport”, and “waste treatment”. Our results show that, for all product groups but waste treatment, the fossil CED correlates well with most impact categories, such as global warming, resource depletion, acidification, eutrophication, tropospheric ozone formation, ozone depletion, and human toxicity (explained variance between 46% and 100%). We conclude that the use of fossil fuels is an important driver of several environmental impacts and thereby indicative for many environmental problems. It may therefore serve as a screening indicator for environmental performance. However, the usefulness of fossil CED as a stand-alone indicator for environmental impact is limited by the large uncertainty in the product-specific fossil CEDbased impact scores (larger than a factor of 10 for the majority of the impact categories; 95% confidence interval). A major reason for this high uncertainty is nonfossil energy related emissions and land use, such as landfill leachates, radionuclide emissions, and land use in agriculture and forestry.

#### Vote Negative

#### Limits- there are infinite financial incentives that can be tied to things external to energy production- limiting the incentives part of the topic to directly involving production is key to limits because of the difficulty of defining what a restriction on energy production is.

#### Our limit is the only non- arbitrary one because it is the most grammatically correct- financial incentives for energy production is an adjectival phrase- even if their aff is a financial incentive- it is not DIRECTLY for energy production.

#### Core negative ground—NEG arguments are derived from the increase in actual energy production in the United States. Development of the reactor is the core controversy in resolutional literature - only this interpretation preserves topic education and encourages topic debate.

#### Extra topicality is a voting issue—it proves the resolution is insufficient, severance destroys stable negative ground and the plan text is key to in-depth research.

## OFF

#### Text: The fifty states and all relevant United States territories should substantially increase financial support for magnetic fusion energy generation in the United States.

States solve nuclear

Ben-Moshe 2009 (Sony Ben-Moshe, Jason J. Crowell, Kelley M. Gale, Breton A. Peace, Brett P. Rosenblatt, and Kelly D. Thomason, attorneys in the Project Finance Practice Group in the San Diego office of Latham & Watkins, 2009, “FINANCING THE NUCLEAR RENAISSANCE: THE BENEFITS AND POTENTIAL PITFALLS OF FEDERAL & STATE GOVERNMENT SUBSIDIES AND THE FUTURE OF NUCLEAR POWER IN CALIFORNIA,” Energy Law Journal, Volume 30, Number 2, online)

In addition to federal subsidies, various states have passed legislation to promote the development of new nuclear power plants that supplement the financial incentives provided by the DOE. The most commonly used incentive for nuclear construction in states with rate-regulated utilities are regulations which allow utilities to recover their capital costs and construction work in progress (CWIP) in rate-bases utilized to determine the regulated rates utilities charge to consumers either during construction or once the plant is either put in service or abandoned. The states that do not permit costs to be recovered during construction have a process by which a state commission can annually approve costs on a non-appealable basis for inclusion in the rate-base at commercial operation or abandonment.¶ Both rate-regulated and restructured states also provide tax credits or exemptions for new nuclear construction. Kansas exempts new nuclear facilities from state property taxes while Texas permits school districts to enter into agreements with developers of new nuclear plants to limit the appraised value of the plants for purposes of assessing school district maintenance and operations property taxes.¶ The following Table provides a summary of the key features of the various state programs providing financial incentives for new nuclear power development.¶ Legislation is also currently pending in Indiana and Oklahoma that would provide cost recovery mechanisms for new nuclear construction.156 Other states have recently implemented legislation or regulations indicating their support for construction of nuclear power plants through programs aside from direct financial incentives. Utah passed a bill establishing a state position of ―energy officer‖ and a policy to promote ―the study of nuclear power generation.‖157 Illinois, Kentucky, Minnesota and Wisconsin all currently have legislation pending to overturn state moratoria on the construction of new nuclear plants.158¶ Finally, Georgia and Kentucky have issued general resolutions to support development of new nuclear power plants, while many other state or local governments have issued resolutions to support the construction of particular nuclear plants. The many states that have recently implemented financial incentives for construction of new nuclear power plants to supplement federal programs, and the states that have released policies in support of nuclear development signify the increasing and widespread support for new nuclear power.

CP utilizes states as policy laboratories- Causes federal modeling that’s better than the plan- All our solvency case args are net benefits

Springer 2008 (Darren M. Springer, senior policy analyst in the Environment, Energy & Natural Resources Division of the National Governors Association Center for Best Practices, 2008, “States Lead by Example on Energy Policy,” http://www.nga.org/files/live/sites/NGA/files/pdf/08ENERGYPOLICYSPRINGER.PDF)

The nation today faces a number of serious energy challenges, including our dependence on imported oil and the growing amount of greenhouse gas (GHG) emissions. The United States imports ap- proximately 60 percent of the oil we use, sending billions more to foreign nations each year as the price of oil rises. Energy- related GHG emissions are on the rise, with the United States accounting for approximately 25 percent of the world’s GHG emissions despite having just 5 percent of the world popula- tion. In addition, energy prices are rising. A barrel of crude oil cost less than $9 in December of 1998, but recently the price for a barrel of crude oil topped $100, and $4-a-gallon gasoline prices have become commonplace. Prices for natural gas more than tripled between 1990 and 2005, and the price of electric- ity has risen 19 percent in the past three years.¶ As challenging as the situation is today, it is projected to only get worse in the future if we follow a business as usual approach. Dependence on imported oil is projected to increase and GHG emissions are projected to grow. All branches of¶ the federal government have been actively involved in the national debate about how to address our energy challenges. Yet it is in the state governments that the most far-reaching proposals are being enacted. Although there is no federal cap- and-trade program for GHG emissions, groups of states in the West, the Midwest, and the Northeast are banding together to create their own cap-and-trade programs. There is no federal renewable energy portfolio standard (RPS) for electricity, but half the states have a mandatory RPS and several others have voluntary standards.¶ In a number of respects, states are better positioned to experiment with tailored policy solutions than the federal government, which is consistent with the historic role states play as policy laboratories in our federalist system. With growing concerns about energy security and climate change, it is fit- ting that states are leading the charge in pursuing a variety of policy initiatives. While not a replacement for federal actions, the lessons learned from these state efforts will inform federal policy.

## OFF

#### Text: The United States Federal Government should substantially increase financial support for magnetic fusion R&D in the United States.

## OFF

Electricity prices are dropping and will stay low

Dallas Burtraw, one of the nation’s foremost experts on environmental regulation in the electricity sector, and studies electricity restructuring, competition, and economic deregulation, “Falling Emissions and Falling Prices: Expectations for the Domestic Natural Gas Boom,” Common Resources, August 21, 2012, <http://common-resources.org/2012/falling-emissions-and-falling-prices-expectations-for-the-domestic-natural-gas-boom/>, accessed 10-25-2012.

Moreover, the boom in domestic natural gas production could have even more immediate affects for U.S. electricity consumers. The increased supply of gas is expected to lower natural gas prices and retail electricity prices over the next 20 years, according to a [new RFF Issue Brief](http://www.rff.org/Publications/Pages/PublicationDetails.aspx?PublicationID=22019). These price decreases are expected to be even larger if demand for electricity continues on a slow-growth trajectory brought on by the economic downturn and the increased use of energy efficiency. For example, RFF analysis found that delivered natural gas prices would have been almost 35% higher in 2020 if natural gas supply projections had matched the lower estimates released by the U.S. Energy Information Administration (EIA) in 2009. Instead, with an increased gas supply, consumers can expect to pay $4.9 per MMBtu for delivered natural gas in 2020 instead of $6.6 per MMBtu. These trends are even more exaggerated if demand for electricity were to increase to levels projected by the EIA just three years ago, in 2009.This decrease in natural gas prices is expected to translate into a decrease in retail electricity prices for most electricity customers in most years out to 2020. Compared to the world with the lower gas supply projections, average national electricity prices are expected to be almost 6% lower, falling from 9.25 cents to 8.75 cents per kilowatt-hour in 2020. Residential, commercial, and industrial customers are all expected to see a price decrease, with the largest price changes occurring in parts of the country that have competitive electricity markets. All of these prices decreases translate into real savings for most electricity customers. The savings are largest for commercial customers, who stand to save $33.9 Billion (real $2009) under the new gas supply projections in 2020. Residential customers also stand to save big, with estimates of $25.8 Billion (real $2009) in savings projected for 2020.

New nuclear reactors drive up electricity prices

Mark Cooper, SENIOR FELLOW FOR ECONOMIC ANALYSIS INSTITUTE FOR ENERGY AND THE ENVIRONMENT¶ VERMONT LAW SCHOOL, "THE ECONOMICS OF NUCLEAR REACTORS: RENAISSANCE OR RELAPSE?," 2009, http://www.vermontlaw.edu/Documents/Cooper%20Report%20on%20Nuclear%20Economics%20FINAL%5B1%5D.pdf

Within the past year, estimates of the cost of nuclear power from a new generation of ¶ reactors have ranged from a low of 8.4 cents per kilowatt hour (kWh) to a high of 30 cents. This ¶ paper tackles the debate over the cost of building new nuclear reactors, with the key findings as ¶ follows: ¶ • The initial cost projections put out early in today’s so-called “nuclear renaissance” were about ¶ one-third of what one would have expected, based on the nuclear reactors completed in the ¶ 1990s. ¶ • The most recent cost projections for new nuclear reactors are, on average, over four times as high as the initial “nuclear renaissance” projections. ¶ • There are numerous options available to meet the need for electricity in a carbon-constrained ¶ environment that are superior to building nuclear reactors. Indeed, nuclear reactors are the worst option from the point of view of the consumer and society. ¶ • The low carbon sources that are less costly than nuclear include efficiency, cogeneration, ¶ biomass, geothermal, wind, solar thermal and natural gas. Solar photovoltaics that are presently ¶ more costly than nuclear reactors are projected to decline dramatically in price in the next ¶ decade. Fossil fuels with carbon capture and storage, which are not presently available, are ¶ projected to be somewhat more costly than nuclear reactors. ¶ • Numerous studies by Wall Street and independent energy analysts estimate efficiency and ¶ renewable costs at an average of 6 cents per kilowatt hour, while the cost of electricity from ¶ nuclear reactors is estimated in the range of 12 to 20 cents per kWh. ¶ • The additional cost of building 100 new nuclear reactors, instead of pursuing a least cost ¶ efficiency-renewable strategy, would be in the range of $1.9-$4.4 trillion over the life the ¶ reactors. ¶ Whether the burden falls on ratepayers (in electricity bills) or taxpayers (in large subsidies), ¶ incurring excess costs of that magnitude would be a substantial burden on the national economy and ¶ add immensely to the cost of electricity and the cost of reducing carbon emissions.

Low electricity prices sustain U.S. manufacturing which is key to the economy – re-shoring, key industries

Perry 7/31/12 (Mark, Prof of Economics @ Univ. of Michigan, "America's Energy Jackpot: Industrial Natural Gas Prices Fall to the Lowest Level in Recent History," http://mjperry.blogspot.com/2012/07/americas-energy-jackpot-industrial.html)

Building petrochemical plants could suddenly become attractive in the United States. Manufacturers will "reshore" production to take advantage of low natural gas and electricity prices. Energy costs will be lower for a long time, giving a competitive advantage to companies that invest in America, and also helping American consumers who get hit hard when energy prices spike.¶ After years of bad economic news, the natural gas windfall is very good news. Let's make the most of it." ¶ The falling natural gas prices also make the predictions in this December 2011 study by PriceWaterhouseCoopers, "Shale gas: A renaissance in US manufacturing?"all the more likely: ¶ U.S. manufacturing companies (chemicals, metals and industrial) could employ approximately one million more workers by 2025 because of abundant, low-priced natural gas.¶ Lower feedstock and energy cost could help U.S. manufacturers reduce natural gas expenses by as much as $11.6 billion annually through 2025.¶ MP: As I have emphasized lately, America's ongoing shale-based energy revolution is one of the real bright spots in an otherwise somewhat gloomy economy, and provides one of the best reasons to be bullish about America's future. The shale revolution is creating thousands of well-paying, shovel-ready jobs in Texas, North Dakota and Ohio, and thousands of indirect jobs in industries that support the shale boom (sand, drilling equipment, transportation, infrastructure, steel pipe, restaurants, etc.). In addition, the abundant shale gas is driving down energy prices for industrial, commercial, residential and electricity-generating users, which frees up billions of dollars that can be spent on other goods and services throughout the economy, providing an energy-based stimulus to the economy. ¶ Cheap natural gas is also translating into cheaper electricity rates, as low-cost natural gas displaces coal. Further, cheap and abundant natural gas is sparking a manufacturing renaissance in energy-intensive industries like chemicals, fertilizers, and steel. And unlike renewable energies like solar and wind, the natural gas boom is happening without any taxpayer-funded grants, subsidies, credits and loans. Finally, we get an environmental bonus of lower CO2 emissions as natural gas replaces coal for electricity generation. Sure seems like a win, win, win, win situation to me.

Global economic crisis causes war - strong statistical support - also causes great power transitions.

Jedediah Royal, 2010, Director of Cooperative Threat Reduction at the U.S. Department of Defense, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-14

Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defence behaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson’s (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crises could usher in a redistribution of relative power (see also Gilpin, 10981) that leads to uncertainty about power balances, increasing the risk of miscalculation (Fearon, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner, 1999). Seperately, Polllins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium, and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland’s (1996,2000) theory of trade expectations suggests that ‘future expectation of trade’ is a significant variable in understanding economic conditions and security behavior of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, if the expectation of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases , as states will be inclined to use force to gain access to those resources. Crises could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states. Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn. They write, The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favour. Moreover, the presence of a recession tends to amplify the extent to which international and external conflicts self-reinforce each other. (Blomberg & Hess, 2002, p.89). Economic decline has also been linked with an increase in the likelihood of terrorism (Blomberg, Hess, & Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. ‘Diversionary theory’ suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to create a ‘rally round the flag’ effect. Wang (1996), DeRouen (1995), and Blomberg, Hess and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997) Miller (1999) and Kisanganie and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak presidential popularity, are statistically linked to an increase in the use of force.

## OFF

Production misdefines the problem – profit explains their impacts & guts solvency

Chien 74 Chang Chien, @ the Peking Review, “Behind the So-Called “Energy Crisis”, March 15th, 1974, http://www.marxists.org/subject/china/peking-review/1974/PR1974-11a.htm

THE major capitalist countries are going through a serious “energy crisis.” The oil supply shortage has caused production and living conditions to be affected by a “petroleum shock.” Prices are soaring in step with oil prices and stocks are falling in the face of bleak economic prospects. International political and economic relations also have been influenced by the “energy crisis.” The situation is being widely discussed. Some bourgeois newspapers and journals abroad blamed the “energy crisis” on an “exhaustion of energy resources” while others absurdly reproached the Arab people with using oil as a weapon. These assertions which evade the heart of the matter or shift the responsibility on to other people are simply designed to create confusion and mislead people. What is it really all about? The current “energy crisis” takes mainly the form of an insufficient supply of oil. While on the surface it may be a question of natural resources, in reality this is absolutely not so. The world’s energy resources, including those of the main capitalist countries, are plentiful. Furthermore, with the development of production and the steady rise of human knowledge, people are discovering and will continue to discover new sources of energy. In essence, the “energy crisis” gripping the capitalist world is a reflection of the crisis of the capitalist system, an outcome of the sharpening contradictions within the capitalist-imperialisi system, and a result of the monopoly capitalists’ ruthless exploitation and nefarious plunder of the people at home and abroad; today, it is also a direct result of unbridled foreign expansion and rivalry for world hegemony by the two superpowers, U.S. imperialism and Soviet revisionism. Under the capitalist system, “production of surplus-value is the absolute law of this mode of production” (Marx, Capital). The nature of the monopoly capitalist class is to seek fabulous monopoly profits. In exploiting energy resources, the capitalists do not consider the rational use of natural resources but only seek maximum profits. The decrease and increase of the various energy resources often depend on the amount of profit they give. Once the main source of energy, coal was known as the “food of industry.” Today, though there we still very rich deposits of coal, the industry in general has declined in the leading capitalist countries. Even in the United States, which has the biggest reserves, coal accounts for only one-fifth of its energy production. The reason is that as it is much more profitable to exploit oil than to mine coal, the capitalists have, therefore, preferred to set coal aside. Although, oil c also be extracted from oil shale and oil sand, they have not been exploited proprely, because the capitalists are not interested; they find that extracting oil from shale and sand is less profitable than direct oil exploitation and therefore cannot satisfy their ravenous appetites. Capitalism means waste. In the capitalist world, large quantities of petroleum are wasted because of anarchy in production and general wastefulness in life. A large amount of precious oil has been freely abandoned underground because indiscriminate drilling destroyed oil-bearing formations, or because pressures were lowered so much by drawing oil recklessly that it no longer could be made to flow out, etc. It is estimated that the present rate of oil recovery is only 35 per cent in the United States. In other words, for every ton of oil obtained, two tons are abandoned. As to lavish waste in consumption, this is even more shocking. Nowadays, electricity for non-productive use in the capitalist countries takes up one-third to one-half their total electric power output. The U.S. press admits that half the energy consumption in the United States is wasted. Wild arms expansion and war preparations by imperialism and social-imperialism and their wars of aggression are bottomless pits in consuming and squandering oil. This is the basic reason why the “energy crisis” has hit the so-called developed capitalist countries when the world’s energy resources have never been so rich and varied as they are today. As some Americans say, the blame lies not with Mother Nature but with Uncle Sam. Imperialism means aggression and plunder. In view of the economic and strategic importance of oil and also because it is more profitable to grab oil abroad than to exploit it at home, the monopoly capitalists often leave domestic oil unexploited and swarm to plunder the oil of the Third World countries. They have a special interest in the Middle East which has rich oil deposits and occupies an important strategic position politically and geographically. Two-thirds of the world’s proven oil reserves are in the Middle East. Cost of exploitation there is very low as the oil beds are fairly shallow, the rate of success in well drilling is high, output is big and labour is cheap. For example, in Kuwait the cost of extracting one ton of oil is only one-twentieth of that in the United States. Middle East oil has become a golden stream yielding fabulous profits for foreign monopoly capitalists. The Middle East has long been a centre of contention among the imperialist countries. Since World War II, the United States has replaced Britain as the biggest plunderer of Middle East oil resources. At present, U.S. monopoly capitalists control more than half the Middle East’s oil production. Direct U.S. private investments in Middle East oil amounted to 1,800 million dollars by the end of 1972 whereas U.S. profits from the investments was 2,400 million dollars that year alone. The profit rate was as high as 130 per cent, or 10 times the average for all overseas U.S. investments. The temporary and false prosperity of the imperialist countries in postwar years is built on the natural resources and the blood and sweat of the people of the Third World.

Extinction

Meszaros, prof Philosophy & Political Theory, 95

Istvan Meszaros, 1995, Professor at University of Sussex, England, “Beyond Capital: Toward a Theory of Transition”

With regard to its innermost determination the capital system is expansion oriented and accumulation-driven. Such a determination constitutes both a formerly unimaginable dynamism and a fateful deficiency. In this sense, as a system of social metabolic control capital is quite irresistible for as long as it can successfully extract and accumulate surplus-labour-whether in directly economic or in primarily political form- in the course of the given society’s expandoed reproduction. Once, however, this dynamic process of expansion and accumulation gets stuck (for whatever reason) the consequences must be quite devastating. For even under the ‘normality’ of relatively limited cyclic disturbances and blockages the destruction that goes with the ensuing socioeconomic and political crises can be enormous, as the annals of the twentieth century reveal it, including two world wars (not to mention numerous smaller conflagrations). It is therefore not too difficult to imagine the implications of a systemic, truly structural crisis; i.e. one that affects the global capital system not simply under one if its aspects-the financial/monetary one, for instance-but in all its fundamental dimensions, questioning its viability altogether as a social reproductive system. Under the conditions of capital's structural crisis its destructive constituents come to the fore with a vengeance, activating the spectre of total uncontrollability in a form that foreshadows self-destruction both for this unique social reproductive system itself and for humanity in general. As we shall see in Chapter 3, capital was near amenable to proper and durable control or rational self-restraint.

Reject on ethics

Zizek and Daly 2k4 (Slavoj and Glyn, Conversations with Zizek page 14-16)

For Zizek it is imperative that we cut through this Gordian knot of postmodern protocol and recognize that our ethico-political responsibility is to confront the constitutive violence of today’s global capitalism and its obscene naturalization / anonymization of the millions who are subjugated by it throughout the world. Against the standardized positions of postmodern culture – with all its pieties concerning ‘multiculturalist’ etiquette – Zizek is arguing for a politics that might be called ‘radically incorrect’ in the sense that it break with these types of positions 7 and focuses instead on the very organizing principles of today’s social reality: the principles of global liberal capitalism. This requires some care and subtlety. For far too long, Marxism has been bedeviled by an almost fetishistic economism that has tended towards political morbidity. With the likes of Hilferding and Gramsci, and more recently Laclau and Mouffee, crucial theoretical advances have been made that enable the transcendence of all forms of economism. In this new context, however, Zizek argues that the problem that now presents itself is almost that of the opposite fetish. That is to say, the prohibitive anxieties surrounding the taboo of economism can function as a way of not engaging with economic reality and as a way of implicitly accepting the latter as a basic horizon of existence. In an ironic Freudian-Lacanian twist, the fear of economism can end up reinforcing a de facto economic necessity in respect of contemporary capitalism (i.e. the initial prohibition conjures up the very thing it fears).This is not to endorse any kind of retrograde return to economism. Zizek’s point is rather that in rejecting economism we should not lose sight of the systemic power of capital in shaping the lives and destinies of humanity and our very sense of the possible. In particular we should not overlook Marx’s central insight that in order to create a universal global system the forces of capitalism seek to conceal the politico-discursive violence of its construction through a kind of gentrification of that system. What is persistently denied by neo-liberals such as Rorty (1989) and Fukuyama (1992) is that the gentrification of global liberal capitalism is one whose ‘universalism’ fundamentally reproduces and depends upon a disavowed violence that excludes vast sectors of the world’s populations. In this way, neo-liberal ideology attempts to naturalize capitalism by presenting its outcomes of winning and losing as if they were simply a matter of chance and sound judgment in a neutral market place. Capitalism does indeed create a space for a certain diversity, at least for the central capitalist regions, but it is neither neutral nor ideal and its price in terms of social exclusion is exorbitant. That is to say, the human cost in terms of inherent global poverty and degraded ‘life-chances’ cannot be calculated within the existing economic rationale and, in consequence, social exclusion remains mystified and nameless (viz. the patronizing reference to the ‘developing world’).

Alt: withdraw completely from the ideology of capitalism

Johnston, interdisciplinary research fellow in psychoanalysis at Emory University, 2004 Adrian, Psychoanalysis, Culture & Society, December v9 i3 p259 page infotrac

Perhaps the absence of a detailed political roadmap in Zizek's recent writings isn't a major shortcoming. Maybe, at least for the time being, the most important task is simply the negativity of the critical struggle, the effort to cure an intellectual constipation resulting from capitalist ideology and thereby to truly open up the space for imagining authentic alternatives to the prevailing state of the situation. Another definition of materialism offered by Zizek is that it amounts to accepting the internal inherence of what fantasmatically appears as an external deadlock or hindrance (Zizek, 2001d, pp 22-23) (with fantasy itself being defined as the false externalization of something within the subject, namely, the illusory projection of an inner obstacle, Zizek, 2000a, p 16). From this perspective, seeing through ideological fantasies by learning how to think again outside the confines of current restrictions has, in and of itself, the potential to operate as a form of real revolutionary practice (rather than remaining merely an instance of negative/critical intellectual reflection). Why is this the case? Recalling the analysis of commodity fetishism, the social efficacy of money as the universal medium of exchange (and the entire political economy grounded upon it) ultimately relies upon nothing more than a kind of "magic," that is, the belief in money's social efficacy by those using it in the processes of exchange. Since the value of currency is, at bottom, reducible to the belief that it has the value attributed to it (and that everyone believes that everyone else believes this as well), derailing capitalism by destroying its essential financial substance is, in a certain respect, as easy as dissolving the mere belief in this substance's powers. The "external" obstacle of the capitalist system exists exclusively on the condition that subjects, whether consciously or unconsciously, "internally" believe in it--capitalism's life-blood, money, is simply a fetishistic crystallization of a belief in others' belief in the socio-performative force emanating from this same material. And yet, this point of capitalism's frail vulnerability is simultaneously the source of its enormous strength: its vampiric symbiosis with individual human desire, and the fact that the late-capitalist cynic's fetishism enables the disavowal of his/her de facto belief in capitalism, makes it highly unlikely that people can simply be persuaded to stop believing and start thinking (especially since, as Zizek claims, many of these people are convinced that they already have ceased believing

Alt solves the root cause - plan’s incrementalism gets rolled back.

http://site.www.umb.edu/faculty/salzman\_g/Strategy/GettingFree/ A Sketch of An Association of Democratic, Autonomous Neighborhoods And How to Create It And Other Essays Plus An Annotated Bibliography in English for the Libertarian Left By Jared James 2002

10. Single-issue campaigns. We cannot destroy capitalism with single-issue campaigns. Yet the great bulk of the energies of radicals is spent on these campaigns. There are dozens of them: campaigns to preserve the forests, keep rent control, stop whaling, stop animal experiments, defend abortion rights, stop toxic dumping, stop the killing of baby seals, stop nuclear testing, stop smoking, stop pornography, stop drug testing, stop drugs, stop the war on drugs, stop police brutality, stop union busting, stop red-lining, stop the death penalty, stop racism, stop sexism, stop child abuse, stop the re-emerging slave trade, stop the bombing of Yugoslavia, stop the logging of redwoods, stop the spread of advertising, stop the patenting of genes, stop the trapping and killing of animals for furs, stop irradiated meat, stop genetically modified foods, stop human cloning, stop the death squads in Colombia, stop the World Bank and the World Trade Organization, stop the extermination of species, stop corporations from buying politicians, stop high stakes educational testing, stop the bovine growth hormone from being used on milk cows, stop micro radio from being banned, stop global warming, stop the militarization of space, stop the killing of the oceans, and on and on. What we are doing is spending our lives trying to fix up a system which generates evils far faster than we can ever eradicate them. Although some of these campaigns use direct action (e.g., spikes in the trees to stop the chain saws or Greenpeace boats in front of the whaling ships to block the harpoons), for the most part the campaigns are directed at passing legislation in Congress to correct the problem. Unfortunately, reforms that are won in one decade, after endless agitation, can be easily wiped off the books the following decade, after the protesters have gone home, or after a new administration comes to power. These struggles all have value and are needed. Could anyone think that the campaigns against global warming, or to free Leonard Peltier, or to aid the East Timorese ought to be abandoned? Single issue campaigns keep us aware of what's wrong, and sometimes even win. But in and of themselves, they cannot destroy capitalism, and thus cannot really fix things. It is utopian to believe that we can reform capitalism. Most of these evils can only be eradicated for good if we destroy capitalism itself and create a new civilization. We cannot afford to aim for anything less. Our very survival is at stake. There is one single-issue campaign I can wholehearted endorse: the total and permanent eradication of capitalism.

Reject the method of the 1AC.

James Marsh, 1995 (Critique, Action, and Liberation, p. 333-335)

To the extent, therefore, that science and technology dominate in the twentieth century as not only the highest forms of reason but the only forms of reason, they shove other, more profound, more reflective, more fundamental forms of reason to the side and twentieth-century industrial society emerges as an inverted, topsy-turvy, absurd world. What seems normal, factual, rational, and sane in such a world is in fact abnormal, apparent, irrational, and absurd. We begin to suspect and see that science and technology appear as the highest and only forms of reason because capitalism has appropriated science and technology for its own ends as productive force and ideology. In science and technology capitalism has found the forms of rationality most appropriate for itself, perfectly manifesting it, mirroring it, and justifying it. In such an absurd, inverted, topsy-turvy world, fidelity to the life of reason demands critique, resistance, and revolutionary transcendence. One has to pierce the veil of such a world, see through it as absurd rather than accepting it as normal and sane. The prevailing rationality is profoundly irrational.'2 A rationality, however, that confines itself to understanding the facts and accepting the facts as normal cannot pierce the veil. Indeed, piercing the veil becomes irrational according to such a definition of reason.

## Leadership

Fusion fails even with strong investment – lack of tritium self-sufficiency and extremely high neutron flux – focus on this reactor scrambles efforts to tackle energy problems – collapses energy leadership.

Francois Cellier, 11-10-2009, MS in electrical engineering, PhD degree in technical sciences from the Swiss Federal Institute of Technology (ETH) Zurich, worked at the University of Arizona as professor in electrical engineering, specialization in modeling and simulation methodologies, specialist in modeling and simulation of physical systems at the Institute of Computational Science, The Oil Drum: Europe, “The Future of Nuclear Energy: Facts and Fiction - Part IV: Energy from Breeder Reactors and from Fusion?,” <http://www.iseof.org/~europe/node/5929#Ref_31>

Those not familiar with the handling of high neutron fluxes or the possible chemical reactions of tritium and lithium atoms might suppose that these problems are well known within the fusion community and are being studied intensively. But the truth is, none of these problems have been studied intensively and, at best, even with the ITER project, the only problems that might be studied relate to some of the plasma stability issues outlined in Section 5.1. All of the other problem areas are essentially ignored in today's discussions among ITER experts. Confronted with the seemingly impossible tritium self-sufficiency problem that must be solved before a commercial fusion reactor is possible, the ITER experts tell you that this is not a problem that the current ITER project is to address. It won't be until the next generation of experiments -experiments that will not begin for roughly another 30 years according to official plans- that issues related to tritium self-sufficiency will have to be dealt with. They seem to also be comfortable with the fact that neither the problems related to material aging due to the high neutron flux nor the problems related to tritium and lithium handling can be tested with ITER. However, among those who are not part of ITER and who do not expect miracles, an ever increasing number of scientists is coming to the conclusion that commercial fusion reactors can never become a reality. They are even starting to receive attention from the media as they argue ever more loudly that the ITER project will contribute very little, if anything, to energy research [42]. One scientist who should be listened to more widely is Prof. Abdou. In a pre­sentation in 2003 that was prepared on behalf of the US fusion chamber technology community for the US Department of Energy (DOE) Office of Science on Fusion Chamber Technology, he wrote that "tritium supply and self-sufficiency are a 'Go-No Go' issue for fusion energy, [and are therefore] as critical NOW as demonstrating a burning plasma" [capitalization in original]. He pointed out that "there is NOT a single experiment yet in the fusion environment that shows that the DT fusion fuel cycle is viable." He said that "proceeding with ITER makes Chamber Research even more critical" and he asked: "What should we do to communicate this message to those who influence fusion policy outside DOE?" [43]. In short, to go ahead with ITER without addressing these chamber technology issues makes very little sense economically. In the light of everything that has been said in this section, it seems clear that the nuclear fusion scientists should be telling the truth to the tax payers, the policy makers, and the media. They should tell them that, after 50 years of very costly fusion research conducted at various locations around the world, enough knowledge exists to state that: today's achievements in all relevant areas of nuclear fusion are still many orders of magnitude away from the basic requirements of a fusion prototype reactor; no material or structure is known that can withstand the extremely high neutron flux expected under realistic deuterium-tritium fusion conditions; and self-sufficient tritium breeding appears to be impossible to achieve under the conditions required to operate a commercial fusion reactor. It is late, but perhaps not too late, to acknowledge that the ITER project is at this point nothing more than an expensive experiment to investigate some fundamental aspects of plasma physics. Since this would in effect acknowledge that the current ITER funding process is based on faulty assumptions and that ITER should in all fairness be funded on equal terms with all other basic research projects, acknowledging these truths will not be easy. Yet, it is the only honest thing to do. It is also the only path that will allow us to transfer from ITER to other more promising research efforts the enormous resources and the highly skilled talents that need now to be brought to bear on our increasingly urgent energy problems. In short, this is the only path that will allow us to stop "throwing good money after bad" and to start dealing with our emerging energy crisis in a realistic way.

Science diplomacy is high now and ineffective for reasons the plan doesn’t address

David Dickson Director, SciDev.Net 4 June 2009 The limits of science diplomacy http://www.scidev.net/en/editorials/the-limits-of-science-diplomacy.html

Recently, the Obama administration has given this field a new push, in its desire to pursue "soft diplomacy" in regions such as the Middle East. Scientific agreements have been at the forefront of the administration's activities in countries such as Iraq and Pakistan. But — as emerged from a meeting entitled New Frontiers in Science Diplomacy, held in London this week (1–2 June) — using science for diplomatic purposes is not as straightforward as it seems. Some scientific collaboration clearly demonstrates what countries can achieve by working together. For example, a new synchrotron under construction in Jordan is rapidly becoming a symbol of the potential for teamwork in the Middle East. But whether scientific cooperation can become a precursor for political collaboration is less evident. For example, despite hopes that the Middle East synchrotron would help bring peace to the region, several countries have been reluctant to support it until the Palestine problem is resolved. Indeed, one speaker at the London meeting (organised by the UK's Royal Society and the American Association for the Advancement of Science) even suggested that the changes scientific innovations bring inevitably lead to turbulence and upheaval. In such a context, viewing science as a driver for peace may be wishful thinking.

Community colleges.

Andrew Nusca 2010, March 2 “Can the nuclear power industry overcome a critical labor shortage?” <http://www.smartplanet.com/blog/smart-takes/can-the-nuclear-power-industry-overcome-a-critical-labor-shortage/4683>

At least that’s what reporter Jonathan Berr says, who writes on DailyFinance that an aging workforce may be a major hurdle in President Obama’s attempt to infuse the industry with some $8.33 billion in loan guarantees to build new nuclear reactors. The problem: Nuclear catastrophes over the years, such as the Three Mile Island incident, have discouraged folks to enter the industry. Now, those who are left in the highly-trained workforce are nearing the age for retirement. That’s a problem, since 18 commercial nuclear projects are under consideration, according to the Energy Information Administration. Here’s the good news: Some plant owners, such as Public Service Enterprise Group, have been working with local community colleges to train qualified workers.

New training programs.

CBS News 2010 April 30 “New Nuke Plants Face Skilled Labor Shortage” <http://www.cbsnews.com/2100-205\_162-6447427.html>

The Southern Co. believes it can break ground on the country's first nuclear plant in 30 years, but it will need a new generation of workers to run it.

Plans for building a wave of nuclear reactors would create a need for 12,000 to 21,000 new workers ranging from specially trained maintenance crews to nuclear physicists and engineers. The need for labor is compounded since more than a third of the country's existing nuclear workers will be eligible for retirement in four years. To cope with the demand, nuclear power firms nationwide are partnering with more than 40 community colleges on a new curriculum designed to train entry level workers and give them a head start when it comes to finding a job.In Georgia, Augusta Technical College began accepting applications in April from students interested in a two-year course to prepare them for entry-level jobs at the Southern Co.'s expanded Plant Vogtle and elsewhere. If the Atlanta-based Southern Co. wins federal approval to build the reactors, the company hopes they will be fully operational by 2017 and provide 850 local jobs. Power companies have submitted 17 applications to build and operate nuclear reactors across the country, from Texas and Michigan to Missouri and South Carolina."We're putting together work force development pipelines," said Andrew Bouldin, who helps coordinate recruiting for Southern Co.'s nuclear subsidiary. "The technical colleges have a good track record of teaching technical education, and it's a great way to make sure we have technically savvy candidates."

Pipeline for new research solid now- they ignore key evidence.

Mervis, 12 – Science magazine deputy news editor

(Jeffrey, "What If the Science Pipeline Isn't Really Leaking?," Science, July 2012, 337.6092, Science Magazine, accessed 10-8-12,)

However, a new book on the overall health of the U.S. scientific enterprise argues not only that the pipeline isn't leaky, but that it's the wrong metaphor. “There is little evidence that science suffers a ‘leaky pipeline’ during the college years that disproportionately steers students away from scientific fields and toward non-scientific studies,” write Yu Xie of the University of Michigan, Ann Arbor, a sociologist and longtime analyst of the scientific workforce, and Alexandra Killewald, his former doctoral student, who this month joined the faculty at Harvard University. Xie and Killewald argue that the pipeline paradigm ignores two important variables: students who obtain an undergraduate science degree after switching from a nonscience field, and those who drop out of school before earning any degree. Those omissions, the authors assert, make the pipeline a fatally flawed description of a system that they believe is actually doing a pretty good job of meeting the country's need for scientific talent. While that conclusion goes against the accepted wisdom, experts find the new book persuasive. “I think they have made a pretty good case [on both issues],” says sociologist Robert Hauser, head of the Division of Behavioral and Social Sciences and Education at the National Research Council of the U.S. National Academies. In particular, he adds, “the pipeline is clearly a much more complicated story [than most people realize]. It doesn't look like there is a wholesale slaughter of kids hoping to become scientists.” Xie and Killewald draw their conclusion from national longitudinal studies of high school seniors and their career aspirations. In particular, the pair found that the percentage of college graduates who earned a degree in natural sciences or engineering was higher than the percentage of high school students who said they hoped to earn such a degree. In the most recent cohort—students who graduated from high school in 1992 with plans to attend college—the comparable figures for men are 28.3% and 27.5%; for women, it's 13.2% and 10.5%. The numbers are comparable for the 1972 and 1982 cohorts. (A study following students who graduated from high school in 2004 is still under way.) Those figures don't mean there is no attrition. Individual students do drop out of science, Killewald says, and moving into science at the graduate level is much more difficult, Xie adds. But at the undergraduate level, those turning away from science are outnumbered by “switchers,” or those who enter from nonscience fields. The phenomenon is especially noticeable among women who decide to go into the life sciences. In fact, Killewald says, the pipeline paradigm “captures less than 40% of the women who end up with science degrees.” The other big flaw in the pipeline paradigm, Xie and Killewald argue, is its failure to distinguish between students who abandon science for other fields and those who simply drop out of university. Among men in the 1992 cohort who fall short of their goal of earning a science degree, Killewald says, “70% receive no college degree at all, while only 30% receive a nonscience degree.” Aspiring science and engineering majors actually have a lower dropout rate than those planning to earn nonscience degrees—45% versus 51% for men, and 34% versus 40% for women. Those numbers, Killewald says, suggest that “the leaks in the science pipeline are really leaks in the education pipeline.” What she calls an “unequal access to higher education,” a combination of economic, educational, and cultural factors that make it harder for students to attend and complete college, also undermines attempts to attract more Latino and African-American students into science. The authors give a flat no to the book's title question, Is American Science in Decline? Stagnant salaries, gloomy job prospects for academics, and growing international competition are indeed cause for concern, they write. But U.S. science is holding up surprisingly well, they say, and the country is more likely to benefit than be hurt by scientific advances elsewhere.

No impact to failed states.

Stewart M. Patrick, 4-15-2011, senior fellow, director – program on international institutions and global governance at CFR, “Why Failed States Shouldn’t Be Our Biggest National Security Fear,” <http://www.cfr.org/international-peace-and-security/why-failed-states-shouldnt-our-biggest-national-security-fear/p24689>)

In truth, while failed states may be worthy of America's attention on humanitarian and development grounds, most of them are irrelevant to U.S. national security. The risks they pose are mainly to their own inhabitants. Sweeping claims to the contrary are not only inaccurate but distracting and unhelpful, providing little guidance to policymakers seeking to prioritize scarce attention and resources.In 2008, I collaborated with Brookings Institution senior fellow Susan E. Rice, now President Obama's permanent representative to the United Nations, on an index of state weakness in developing countries. The study ranked all 141 developing nations on 20 indicators of state strength, such as the government's ability to provide basic services. More recently, I've examined whether these rankings reveal anything about each nation's role in major global threats: transnational terrorism, proliferation of weapons of mass destruction, international crime and infectious disease.The findings are startlingly clear. Only a handful of the world's failed states pose security concerns to the United States. Far greater dangers emerge from stronger developing countries that may suffer from corruption and lack of government accountability but come nowhere near qualifying as failed states.The link between failed states and transnational terrorism, for instance, is tenuous. Al-Qaeda franchises are concentrated in South Asia, North Africa, the Middle East and Southeast Asia but are markedly absent in most failed states, including in sub-Saharan Africa. Why? From a terrorist's perspective, the notion of finding haven in a failed state is an oxymoron. Al-Qaeda discovered this in the 1990s when seeking a foothold in anarchic Somalia. In intercepted cables, operatives bemoaned the insuperable difficulties of working under chaos, given their need for security and for access to the global financial and communications infrastructure. Al-Qaeda has generally found it easier to maneuver in corrupt but functional states, such as Kenya, where sovereignty provides some protection from outside interdiction.Pakistan and Yemen became sanctuaries for terrorism not only because they are weak but because their governments lack the will to launch sustained counterterrorism operations against militants whom they value for other purposes. Terrorists also need support from local power brokers and populations. Along the Afghanistan-Pakistan border, al-Qaeda finds succor in the Pashtun code of pashtunwali, which requires hospitality to strangers, and in the severe brand of Sunni Islam practiced locally. Likewise in Yemen, al-Qaeda in the Arabian Peninsula has found sympathetic tribal hosts who have long welcomed mujaheddin back from jihadist struggles.Al-Qaeda has met less success in northern Africa's Sahel region, where a moderate, Sufi version of Islam dominates. But as the organization evolves from a centrally directed network to a diffuse movement with autonomous cells in dozens of countries, it is as likely to find haven in the banlieues of Paris or high-rises of Minneapolis as in remote Pakistani valleys.What about failed states and weapons of mass destruction? Many U.S. analysts worry that poorly governed countries will pursue nuclear, biological, chemical or radiological weapons; be unable to control existing weapons; or decide to share WMD materials.These fears are misplaced. With two notable exceptions — North Korea and Pakistan — the world's weakest states pose minimal proliferation risks, since they have limited stocks of fissile or other WMD material and are unlikely to pursue them. Far more threatening are capable countries (say, Iran and Syria) intent on pursuing WMD, corrupt nations (such as Russia) that possess loosely secured nuclear arsenals and poorly policed nations (try Georgia) through which proliferators can smuggle illicit materials or weapons.When it comes to crime, the story is more complex. Failed states do dominate production of some narcotics: Afghanistan cultivates the lion's share of global opium, and war-torn Colombia rules coca production. The tiny African failed state of Guinea-Bissau has become a transshipment point for cocaine bound for Europe. (At one point, the contraband transiting through the country each month was equal to the nation's gross domestic product.) And Somalia, of course, has seen an explosion of maritime piracy. Yet failed states have little or no connection with other categories of transnational crime, from human trafficking to money laundering, intellectual property theft, cyber-crime or counterfeiting of manufactured goods.Criminal networks typically prefer operating in functional countries that provide baseline political order as well as opportunities to corrupt authorities. They also accept higher risks to work in nations straddling major commercial routes. Thus narco-trafficking has exploded in Mexico, which has far stronger institutions than many developing nations but borders the United States. South Africa presents its own advantages. It is a country where “the first and the developing worlds exist side by side,” author Misha Glenny writes. “The first world provides good roads, 728 airports . . . the largest cargo port in Africa, and an efficient banking system. . . . The developing world accounts for the low tax revenue, overstretched social services, high levels of corruption throughout the administration, and 7,600 kilometers of land and sea borders that have more holes than a second-hand dartboard.” Weak and failing African states, such as Niger, simply cannot compete.¶ Nor do failed states pose the greatest threats of pandemic disease. Over the past decade, outbreaks of SARS, avian influenza and swine flu have raised the specter that fast-moving pandemics could kill tens of millions worldwide. Failed states, in this regard, might seem easy incubators of deadly viruses. In fact, recent fast-onset pandemics have bypassed most failed states, which are relatively isolated from the global trade and transportation links needed to spread disease rapidly.Certainly, the world's weakest states — particularly in sub-Saharan Africa — suffer disproportionately from disease, with infection rates higher than in the rest of the world. But their principal health challenges are endemic diseases with local effects, such as malaria, measles and tuberculosis. While U.S. national security officials and Hollywood screenwriters obsess over the gruesome Ebola and Marburg viruses, outbreaks of these hemorrhagic fevers are rare and self-contained.I do not counsel complacency. The world's richest nations have a moral obligation to bolster health systems in Africa, as the Obama administration is doing through its Global Health Initiative. And they have a duty to ameliorate the challenges posed by HIV/AIDS, which continues to ravage many of the world's weakest states. But poor performance by developing countries in preventing, detecting and responding to infectious disease is often shaped less by budgetary and infrastructure constraints than by conscious decisions by unaccountable or unresponsive regimes. Such deliberate inaction has occurred not only in the world's weakest states but also in stronger developing countries, even in promising democracies. The list is long. It includes Nigeria's feckless response to a 2003-05 polio epidemic, China's lack of candor about the 2003 SARS outbreak, Indonesia's obstructionist attitude to addressing bird flu in 2008 and South Africa's denial for many years about the causes of HIV/AIDS.Unfortunately, misperceptions about the dangers of failed states have transformed budgets and bureaucracies. U.S. intelligence agencies are mapping the world's “ungoverned spaces.” The Pentagon has turned its regional Combatant Commands into platforms to head off state failure and address its spillover effects. The new Quadrennial Diplomacy and Development Review completed by the State Department and the U.S. Agency for International Development depicts fragile and conflict-riddled states as epicenters of terrorism, proliferation, crime and disease.Yet such preoccupations reflect more hype than analysis. U.S. national security officials would be better served — and would serve all of us better — if they turned their strategic lens toward stronger developing countries, from which transnational threats are more likely to emanate.

## STEM

No possible future methods for utilizing fusion as sustainable base-load energy – it violates principles of physics – instability of tritium and neutron loss.

Francois Cellier, 11-10-2009, MS in electrical engineering, PhD degree in technical sciences from the Swiss Federal Institute of Technology (ETH) Zurich, worked at the University of Arizona as professor in electrical engineering, specialization in modeling and simulation methodologies, specialist in modeling and simulation of physical systems at the Institute of Computational Science, The Oil Drum: Europe, “The Future of Nuclear Energy: Facts and Fiction - Part IV: Energy from Breeder Reactors and from Fusion?,” <http://www.iseof.org/~europe/node/5929#Ref_31>

It follows from first principles that the sometimes discussed "cold fusion" reaction is in contradiction with well-established knowledge of subatomic physics. As the repulsive force increases with the number of protons involved, the conditions to achieve fusion with atoms heavier than hy­drogen and its isotopes become more and more difficult. It follows that fusion reactions based for example on the "proton-boron" reaction and many others are only possible using accelerators. Ideas to use accelerators for continuous fusion reactions with commercially interesting GW power prove to be wishful thinking once the required amount of 1021 fusion reactions per second is considered. The very low efficiency for transforming electric energy into kinetic energy of proton beams poses another fundamental problem for such exotic ideas. The probability of a fusion reaction depends on the product of the plasma temperature and the fusion reaction cross-section. The deuterium-tritium fusion is a factor of 100 to 1000 easier to achieve than the next two fusion reactions of deuterium and He32 and deuterium-deuterium, respectively. As it is already extremely difficult to achieve even the lowest interesting plasma temperatures on the required large scale, it follows that the only possible fusion reaction under reactor conditions is the deuterium-tritium fusion into helium (He42). An additional advantage of this reaction is the fact that the produced additional neutron carries 14 MeV of the liberated energy of almost 18 MeV per fusion reaction out of the plasma zone. Thus in theory, it can be imagined that the 4 MeV carried by the helium nucleus are used to keep the plasma temperature high enough, and that the neutron energy is transferred somehow to another cooling medium. This medium is imagined to transfer the heat to a generator. Unfortunately tritium is unstable; its half-life is only 12.3 years; and it does not exist in sizable amounts on our planet. It must therefore be produced in a breeding process. In comparison to the breeding and energy extraction in fission reactions, at least three additional fundamental problems can be identified for the fusion process: A sustained super high temperature, at least 10 million degrees, is required in order to have fusion reactions happening at an interesting rate. Such high temperatures can be achieved in some special magnetic field arrangements or in a tiny volume with very intense laser or particle beams. Unfortunately, no material is known that can survive the intense neutron flux under sustained reactor conditions and the sometimes occurring plasma eruptions. It is difficult to transfer the energy from the 14 MeV neutron to a gas or a liquid without neutron losses. The considered breeding reaction requires essentially that 100% of the produced neutrons must be used to make tritium. As this is even theoretically impossible, some additional nuclear reactions are proposed where heavier nucleons act as neutron multipliers. However so far, even the most optimistic and idealized theoretical calculations have failed to produce neutrons in sufficient numbers. In short, the accumulated knowledge today indicates that the proposed fusion reaction is unsus­tainable and cannot lead to a sustainable power production.

Commercial fusion won’t solve – highly explosive accumulations between tritium and lithium.

Michael Dittmar, 2009, is a researcher with the Institute of Particle Physics of ETH Zurich, and he also works at CERN in Geneva, Ph.D. in advanced physics from Purdue University, specialization in the study of plasma behaviors, “Fusion Illusions,” The Energy Crisis, p. 223-4, Amazon.com

The neutrons produced in the fusion reaction will be emitted essentially isotropically in all directions around the fusion zone. These neutrons must somehow be convinced to escape without further interactions through the first wall surrounding the few 1,000 m3 plasma zone. Next, the neutrons have to interact with a “neutron multiplier” material like beryllium in such manner to increase the neutron flux without transferring too much energy to the remaining nucleons. The neutrons then must transfer their energy without being absorbed (for example, by elastic scattering 15) to some kind of gas or liquid, like high-pressure helium gas, within the lithium carpet. This heated gas or liquid has to be collected somehow from the gigantic carpet volume and must be encouraged to flow to the outside. As in any existing power plant, this heat can be used to power a generator turbine. The gas or liquid should be as hot as possible, in order to achieve reasonable efficiency for electricity production. As we know already, however, the lithium carpet temperature can’t be too hot, thus limiting possible efficiencies well below the ones from today’s not very efficient nuclear fission reactors. Once the heat is extracted and the neutrons have slowed sufficiently, they must interact inelastically with the Li6 isotope, which makes up about 7.5 percent of natural occurring lithium. The minimum thickness required of the so called lithium carpet that surrounds the entire plasma zone has been estimated to be at least one meter. Unfortunately, lithium, like hydrogen, in its pure form is chemically highly reactive. If used in a chemically bound state with oxygen, for example, the oxygen itself could interact and absorb neutrons, something that must be avoided. In addition, that the lithium and the tritium produced would react chemically and that some seven tritium atoms will be blocked within the carpet, has certainly not been included in any present computer modeling. Unfortunately, additional neutron and tritium losses cannot be allowed. Reasons will be descried in more detail in the next section. Next, the engineers need to find an efficient way to extract the tritium quickly before it decays and without loss from this lithium carpet. We are talking about a huge carpet here, one that surrounds the few 1,000 m3 plasma volume. Extracting and collecting the tritium from this huge lithium carpet will be very tricky indeed, since tritium penetrates thin walls relatively easily, and since accumulations of tritium are highly explosive. 16 And finally assuming we get that far, the extracted and collected tritium and deuterium, which both need to be extremely clean, need to be transported, without losses, back to the reactor zone. Each of the unsolved problems described above is, by itself, serious enough to raise doubts about the envisaged success of commercial fusion reactors. But the self-sufficient tritium breeding is especially problematic, as will be described in the next section.

Aff evidence concludes solvency is extremely difficult - aff author.

Stewart Prager, 5-12-2011, Director – U.S. Department of Energy’s Princeton Plasma Physics Laboratory and Professor of Astrophysical Sciences – Princeton University, "Perspective On: The future of Fusion,” [http://www.pppl.gov/polPressReleases.cfm?doc\_id=772](http://www.pppl.gov/polPressReleases.cfm?doc_id=772))

Fusion scientists, like you, have been working to produce fusion reactions for many decades. Why is it so hard to create fusion energy? In a nuclear fusion reaction two atomic nuclei fuse and release energy. In a fusion reactor the core will contain the plasma producing this energy. It's a difficult process because it requires making a hot gas that is 10 times hotter than the core of the sun -- 100 hundred million degrees -- and confining that for long periods of time in a controllable way. Plasmas exhibit complex behavior that is difficult to understand. The engineering challenge is also huge, because you have to surround this hundred-million-degree plasma with a material structure. We often say that fusion is maybe the most, or one of the most difficult science and engineering challenges ever undertaken.

Can’t ramp up fusion time for energy crash - contaminated plasma cause lengthy interruptions.

Francois Cellier, 11-10-2009, MS in electrical engineering, PhD degree in technical sciences from the Swiss Federal Institute of Technology (ETH) Zurich, worked at the University of Arizona as professor in electrical engineering, specialization in modeling and simulation methodologies, specialist in modeling and simulation of physical systems at the Institute of Computational Science, The Oil Drum: Europe, “The Future of Nuclear Energy: Facts and Fiction - Part IV: Energy from Breeder Reactors and from Fusion?,” <http://www.iseof.org/~europe/node/5929#Ref_31>

Commercial energy production requires steady state fusion conditions for a deuterium-tritium plasma on a scale comparable to that of today's standard nuclear fission reactors with outputs of 1 GW (electric) and about 3 GW (thermal) power. The current ITER proposal foresees a thermal power of only 0.4 GW using a plasma volume of 840 m3 . Originally it was planned to build ITER with a plasma volume of 2000 m3 corresponding to a thermal fusion power of 1.5 GW, but the fusion community soon realized that the original ITER version would never receive the required funding. Thus a smaller, much less ambitious version of the ITER project was proposed and finally accepted in 2005. The 1 GW (el) fission reactors of today function essentially in a steady state operation at nominal power and with an availability time over an entire year of roughly 90%. The deuterium-tritium fusion experiments have so far achieved short pulses of fusion power of 15 MW (therm) for one second and 4 MW (therm) for 5 seconds, corresponding to a liberated thermal energy of 5 kWh [34]. The Q-value (produced energy over input energy) for these pulses was 0.65 and 0.2, respectively. If everything works according to the latest plans [35], it will be 2018 when the first plasma experiments can start with ITER. From there, it will take us to 2026, at least another eight years, before the first tritium experiments are tried. The original plans from 2005 are now, even before any serious construction has started, already delayed by four years. In other words, it will take at least 20 years from the agreement by the world's richest countries to construct ITER, before one can ﬁnd out if the goals of ITER, a power output of 0.5 GW (therm) with a Q-value of up to 10 and for 400 seconds, are realistic. Compare that to the original ITER proposal, which was 1.5 GW (therm), with a Q-value between 10-15 and for about 10,000 seconds. ITER proponents explain that the achievement of this goal would already be an enormous success. But this goal, even if it can be achieved by 2026, pales in comparison with the requirements of steady-state operation, year after year, with only a few minor controlled interruptions. Previous deuterium-tritium experiments used only minor quantities of tritium, and yet lengthy interruptions between successive experiments were required, because the radiation from the tri­tium decay was so excessively high. In earlier fusion experiments, such as JET, the energy liberated in the short pulses came from burning (fusing) about 3 micrograms (3 × 10-6 grams) of tritium, starting from a total amount of 20 gr of tritium. This number should be compared with the few kilograms of tritium required to perform the experiments foreseen during the en­tire ITER lifetime and with the still greater quantities that would be required for a commercial fusion reactor. A 400 sec fusion pulse with a power of 0.5 GW corresponds to the burning of 0.035 gr (3.5 × 10-2 grams) of tritium, a very large number, when compared to 3 micrograms, but a tiny number when compared with the yearly burning of 55.6 kilograms of tritium in a commercial 1 GW (therm) fusion reactor. The achieved efficiency of the tritium burning (i.e., the amount that is burned divided by the total amount required to achieve the fusion pulse) was roughly 1 part in a million in the JET experiment and is expected to be about the same in the ITER experiments, far below any acceptable value, if one wants to burn 55.6 kg of tritium per year. Moreover in a steady-state operation, the deuterium-tritium plasma will be "contaminated" with the helium nucleus that is produced, and some instabilities can be expected. Thus a plasma cleaning routine is needed that would not cause noticeable interruptions of production in a commercial fusion plant. ITER proponents know that even their self-defined goal (a 400 second long deuterium-tritium fusion operation within the relatively small volume of 840 m3) presents a great challenge. One might wonder what they think about the difficulties involved in reaching steady-state operation for a full-scale fusion power plant.

U.S. is at the tipping point of successful balance of talent and focus in STEM industries

Gary Yakimov, “Just Do It, One Important Step at a Time,” MEP, October 3, 2012, <http://nistmep.blogs.govdelivery.com/2012/10/03/just-do-it-one-important-step-at-a-time/>, accessed 10-25-2012.

On September 20th I attended a meeting at the U.S. Senate Building to discuss two reports that offer a path forward to increase the competitiveness of U.S. manufacturing. I was struck not by the number of recommendations between the two reports but the similarities between both.¶ The first, Report to the President on Capturing Domestic Competitive Advantage in Advanced Manufacturing was delivered to President Obama in July 2012 by the President’s Council of Advisors on Science and Technology (PCAST). The second, Fifty Ways to Leave Your Competitiveness Woes Behind: A National Traded Sector Competiveness Strategy by the Information Technology and Innovation Foundation, continues the work that authors Rob Atkinson and Stephen Ezell have been doing to advocate for a national manufacturing strategy.¶ It strikes me that we are at a tipping point of individuals, organizations, reports and studies, and strategic recommendations that make sense. Consider that ITIF sponsored A Charter for Revitalizing American Manufacturing that was signed by 19 people across 17 different organizations, all advocating for similar “big issue” solutions to increased manufacturing competitiveness.¶ A saying that a mentor once told me about policy – “it’s not rocket science but it’s really hard, dirty work” – applies here. Most people that are open to the idea of a national manufacturing strategy know the elements that are needed, but getting them done is really hard, for many and varied reasons.¶ What do both of these documents, plus the Charter from earlier this year, share in common as “big picture” things that must get done? In the case of ITIF, it includes a focus on technology, taxes, talent, trade (promotion, enforcement, and market opening) as well as finance, regulatory, and competiveness assessments. Similarly, the PCAST report focuses on enabling innovation, securing the talent pipeline, and improving the business climate. Meanwhile, the previously released Charter document included recommendations in the broad areas of support for SME manufacturing and entrepreneurship, finance and credit provision, trade strategy, tax policy, and talent policy.¶ The overlap amongst these reports is not hard to see. But there are many ways in which we could get started. In the case of the “Fifty Ways” report from ITIF, the document indicates areas that are “Just Do It” recommendations that are revenue-neutral, policy-oriented solutions. There are 19 such “Just Do It” recommendations in the “Fifty Ways” report, or roughly a third. Others require funding, or changes to the tax code, or Congressional or White House action.¶ I for one feel really good that so much attention is being paid to the importance of manufacturing strategies to increase U.S. competitiveness. Clearly we are at a tipping point in the identification and understanding of the major elements of what a national strategy might look and feel like. The PCAST report provides a path forward, and other reports like “Fifty Ways” and the “Charter” help color in the lines. We are getting there, one “Just Do It” and one “wow, this is really hard work” at a time

Nuclear stockpile will inevitably be stable—future research creates security dilemma and miscalculation—net worse for stability.

Elkind ’12 (David J. is a research intern for the Project on Nuclear Issues “American Nuclear Primacy: the End of MAD or a New START?” May 22 http://csis.org/blog/american-nuclear-primacy-end-mad-or-new-start

These results show that the United States cannot reasonably claim to have obtained nuclear primacy. Reductions in the two nations’ respective arsenals, coupled with the large number of Russian targets collaborate to make it exceptionally difficult to destroy the Russian arsenal in a counterforce first strike. Even though my results demonstrate a modest level of confidence in the baseline scenario, I believe that mutually assured destruction remains in place. Because the costs of even a single Russian warhead surviving would have such devastating consequences for the United States, I do not believe that any President or military planner would care to wager America’s most populous cities in conducting a nuclear first strike. While these results speak to the purely military considerations of that choice, the political, ethical and humanitarian considerations likewise make such an action highly unlikely. Even though this article concludes that the US could not carry out a counterforce strike on the Russian arsenal in 2012, and therefore does not possess nuclear primacy, this should not be interpreted as a call to restart the arms race or otherwise acquire primacy. Liber and Press write that “the shift in the nuclear balance could significantly damage relations among the great powers and increase the probability of nuclear war,” and outline a variety of possible mechanisms by which this could come to pass and present rebuttals to counterarguments (interested readers should refer to Lieber and Press, “The End of MAD?” 31-38). To bridge the gap in nuclear capabilities, Russia and China may undertake perilous activities to restore the nuclear balance, such as pre-delegated launch authority, a launch-on-warning posture, or larger nuclear arsenals. Pre-delegated launch authority increases the risk of unauthorized nuclear use; Cold War experience confirms that launch-on-warning postures are vulnerable to false alarms initiating a counter-attack to imaginary missiles; arms races carry the risk that one side will perceive that it has gained the upper hand and undertake a nuclear first use. Furthermore, nuclear primacy carries considerable risks in times of crisis. In the event of a political crisis or a conventional war between the US and a rival power, the threat of a disarming strike by the United States may predispose the rival to land the first blow while it still has the means to do so. In this way, having a reduced confidence in the ability of the US to carry out a first strike should be read as a stabilizing feature of international politics, as strategic stability (if it had ever departed) has been restored as a pillar of the international system. External to these considerations, achieving nuclear primacy would be a pyrrhic victory. The preceding analysis assumes that the United States is in possession of perfect intelligence on the locations and attributes of Russian nuclear weapons facilities and is able to carry out such an attack unhindered by air- or missile-defenses (and concludes such an attack is ill-advised despite possessing perfect information). Even if mobile missiles do not continuously patrol, it would make sense for Russia to shuttle them from one garrison to another in order to decrease Russia’s opponents’ confidence in accounting for all of them. Furthermore, Russia’s decision to deploy its mobile forces in the event of a crisis (or continuously as a matter of policy) could spark concerns in Washington that either a Russian attack is immanent or simply that United States’ confidence in a first-strike option has evaporated, creating further perceptions of insecurity and upsetting the strategic environment which, in the mind of US policymakers, has assumed nuclear primacy. What’s more, mobile deployments are a cheap, easy countermeasure that would effectively negate the confidence gained (such as any is gained) from believing that the United States has nuclear primacy. Achieving, and then maintaining, a position of primacy introduces several significant strategic concerns of its own, and would hardly enhance the security of the United States or the international system. I would like to advance this line of argumentation one step further. If this model accurately reflects reality and a Liber and Press-style counterforce strike on Russia’s nuclear arsenal is unlikely to succeed, then deep cuts to the nuclear arsenal and the decision to abandon counterforce targeting gains credibility. That is, deep cuts to the nuclear arsenal would not mean abandoning counterforce doctrine because that has already happened. Simply put, attempting the counterforce attack would include an inescapable risk to the United States – and we can rest easier knowing that this is the case.

## Navy

ITER working on superconductivity/magnet technology

World Nuclear News, 21 March 2012 http://www.world-nuclear-news.org/NN\_Superconductor\_work\_progresses\_for\_ITER\_210312a.html

Milestones have been reached in the preparatory work for the international next generation fusion reactor, Iter, as Chinese and Italian suppliers complete the construction of key manufacturing facilities and trial versions of parts for the superconducting magnets.¶ In late February China completed and shipped its first major component for the project - 660 metres of toroidal field dummy conductor; while in Italy in early march the Italian Consortium for Applied Superconductivity (ICAS) completed the commissioning of the jacketing line facility, as well as equipment needed for the manufacturing of conductors. The superconducting magnets are some of the highest value and most essential components of the Iter reactor, which is soon to start construction at Cadarache in Southern France. The reactor is to be a kind of tokamak – a doughnut-shaped vacuum vessel which, when operational, will confine and heat a plasma of deuterium and tritium ions to achieve sustained nuclear fusion.¶ Confinement of the plasma is maintained through the toroidal field system which keeps the plasma moving around the chamber, and a poloidal field which pinches the plasma and keeps it away from the walls. In total Iter will require 16 toroidal field and six poloidal field coils. Each D-shaped toroidal coil contains multiple strands of superconducting cable, and weighs in at about 363 tonnes. Each cable consists of about 1000 strands of a special alloy of niobium and twisted together and encased in a steel jacket.¶ The 'dummy' version replaces this alloy with copper so as to qualify the cabling and jacketing process without wasting the more valuable superconducting material. In the jacketing process long sections are welded together into a line about 750 metres long and the cable is drawn through it, allowing weld quality to be checked and repaired if necessary.

Iran will not miscalculate or be aggressive – too many checks in the system

Boroujerdi and Fine 2007 – 57 Syracuse L Rev 619

The potential for groupthink miscalculations is also thwarted by the existence of multiple consensus-based decision bodies within the overall multilayered structure. n18 While this complex process can sometimes make Iranian policy confusing and contradictory, it does not necessarily lend itself to high risk behavior. Even if one agent makes a hasty decision or issues an aggressive policy statement, it may be immediately contradicted by another authority. n19 Individual leaders also have difficulty muting [\*623] criticism within the regime and forcing all agents to agree on one course of action. While miscalculations and hasty behavior may be the rule at the micro-level, at the macro-level hasty action is checked by the competing nodes of power. While this structure could admittedly be problematic with regard to the nuclear program depending on what form of command and control system to control accidents and illicit transfer is established, it makes the prospect of Iran engaging in a boldly offensive or miscalculated action less realistic.

Regular communication checks miscalc

Alterman and Murphy 2008 1/17/08 – CSIS

Absolutely. Both sides already know how to get along in the Gulf. There is routine interaction between U.S. Navy ships and both the IRGCN and the regular Iranian Navy that normally involves professional and predictable radio communications. This helps ensure safety of navigation for both sides in a relatively confined body of water. By engaging in close-in maneuvering with five small boats, Iran seems to have been testing how the United States would respond to an increasingly imminent threat. The deployment of the seemingly innocuous floating boxes is especially ominous, as it could seek to understand how the U.S. Navy would respond to drifting mines or some form of maritime improvised explosive device (IED) in the future. Additionally, the Iranian leadership must have been chagrined by news reports indicating that the U.S. ships were just seconds away from opening fire. Iran learned how close they came to precipitating a lethal response from the U.S. Navy as well as how strongly the most senior levels of the U.S. government will react to such activity.

# 2NC

Economic problems in the squo make conflict more likely.

Mootry 9 (Primus, B.A. Northern Illinois University “Americans likely to face more difficult times” - The Herald Bulletin, http://www.theheraldbulletin.com/columns/local\_story\_282184703.html?keyword=secondarystory)

These are difficult times. The direct and indirect costs associated with the war on Iraq have nearly wrecked our economy. The recent $700 billion bailout, bank failures, and the failure of many small and large businesses across the nation will take years — perhaps decades — to surmount. Along with these rampant business failures, we have seen unemployment rates skyrocket, record numbers of home foreclosures, an explosion of uninsured Americans, and other economic woes that together have politicians now openly willing to mention the "D" word: Depression. These are difficult days. We have seen our international reputation sink to all time lows. We have seen great natural disasters such as hurricanes Ike and Katrina leaving hundreds of thousands of citizens stripped of all they own or permanently dislocated. In all my years, I have never seen a time such as this. To make matters worse, we are witnessing a resurgence of animosities between the United States and Russia, as well as the rapid growth of India and China. As to the growth of these two huge countries, the problem for us is that they are demanding more and more oil — millions of barrels more each week — and there is not much we can say or do about it. In the meantime, if America does not get the oil it needs, our entire economy will grind to a halt. In short, the challenges we face are complex and enormous. Incidentally, one of the factors that makes this time unlike any other in history is the potential for worldwide nuclear conflict. There has never been a time in the long history of man when, through his own technologies — and his arrogance — he can destroy the planet. Given the tensions around the world, a mere spark could lead to global conflagration.[This evidence has been gender paraphrased].

a. Manufacturing strength is key to both the economy and military power

Ettlinger and Gordon 11 (Michael and Kate, the Vice President for Economic Policy at the Center for American Progress, former director of the Economic Analysis and Research Network of the Economic Policy Institute and Vice President for Energy Policy at the Center for American Progress. Most recently, Kate was the co-director of the national Apollo Alliance, where she still serves as senior policy advisor. Former senior associate at the Center on Wisconsin Strategy, "The Importance and Promise of American Manufacturing" [http://www.americanprogress.org/issues/2011/04/pdf/manufacturing.pdf-)](http://www.americanprogress.org/issues/2011/04/pdf/manufacturing.pdf-%29)

Manufacturing is critically important to the American economy. For generations, the strength of our country rested on the power of our factory floors—both the machines and the men and women who worked them. We need manufacturing to continue to be a bedrock of strength for generations to come. Manufacturing is woven into the structure of our economy: Its importance goes far beyond what happens behind the factory gates. The strength or weakness of American manufacturing carries implications for the entire economy, our national security, and the well-being of all Americans. Manufacturing today accounts for 12 percent of the U.S. economy and about 11 percent of the private-sector workforce. But its significance is even greater than these numbers would suggest. The direct impact of manufacturing is only a part of the picture. First, jobs in the manufacturing sector are good middle-class jobs for millions of Americans. Those jobs serve an important role, offering economic opportunity to hard-working, middle-skill workers. This creates upward mobility and broadens and strengthens the middle class to the benefit of the entire economy. What’s more, U.S.-based manufacturing underpins a broad range of jobs that are quite different from the usual image of manufacturing. These are higher-skill service jobs that include the accountants, bankers, and lawyers that are associated with any industry, as well as a broad range of other jobs including basic research and technology development, product and process engineering and design, operations and maintenance, transportation, testing, and lab work. Many of these jobs are critical to American technology and innovation leadership. The problem today is this: Many multinational corporations may for a period keep these higher-skill jobs here at home while they move basic manufacturing elsewhere in response to other countries’ subsidies, the search for cheaper labor costs, and the desire for more direct access to overseas markets, but eventually many of these service jobs will follow. When the basic manufacturing leaves, the feedback loop from the manufacturing floor to the rest of a manufacturing operation—a critical element in the innovative process—is eventually broken. To maintain that feedback loop, companies need to move higher-skill jobs to where they do their manufacturing. And with those jobs goes American leadership in technology and innovation. This is why having a critical mass of both manufacturing and associated service jobs in the United States matters. The "industrial commons" that comes from the crossfertilization and engagement of a community of experts in industry, academia, and government is vital to our nation’s economic competitiveness. Manufacturing also is important for the nation’s economic stability. The experience of the Great Recession exemplifies this point. Although manufacturing plunged in 2008 and early 2009 along with the rest of the economy, it is on the rebound today while other key economic sectors, such as construction, still languish. Diversity in the economy is important—and manufacturing is a particularly important part of the mix. Although manufacturing is certainly affected by broader economic events, the sector’s internal diversity—supplying consumer goods as well as industrial goods, serving both domestic and external markets— gives it great potential resiliency. Finally, supplying our own needs through a strong domestic manufacturing sector protects us from international economic and political disruptions. This is most obviously important in the realm of national security, even narrowly defined as matters related to military strength, where the risk of a weak manufacturing capability is obvious. But overreliance on imports and substantial manufacturing trade deficits weaken us in many ways, making us vulnerable to everything from exchange rate fluctuations to trade embargoes to natural disasters.

b. High energy costs hurts the Navy – wouldn’t be able to afford AFF tech, can’t train sailors, can’t complete missions

U.S. Navy, “Task Force Energy,” June 21, 2010, <http://greenfleet.dodlive.mil/energy/task-force-energy/>, accessed 10-27-2012.

Energy availability costs and security are at the forefront of the challenges faced by our Nation, Department of Defense, and Navy. Energy is essential for developing and employing our combat capability in support of National Defense. The cost of energy needed to complete Navy missions is becoming more volatile and less secure. Both price volatility and supply predictability are strategic concerns since Navy operational flexibility and sustainability are linked directly to our access to energy. High energy costs siphon away resources that can be used to procure Force Structure and to train and equip our Sailors. The potential for disruption of fuel supplies threatens our ability to perform in the battle space and the vulnerability of energy supplies to our facilities puts our ability to support our deployed forces at risk. Additionally, there are numerous current and prospective regulatory and legislative mandates related to energy and climate change.

Chemical industry key to solve disease mutation

NRC 02

[National Research Council Committee on Challenges for Chemical Sciences in the 21st century “National Security and Homeland Defense” -- P 28.]

Many drugs are produced by either chemical synthesis or biosynthetic processes. Recent advances in synthetic organic chemistry, catalysis, biotechnology, and combinatorial chemistry have made it possible to synthesize many chemicals that are not found in nature or have heretofore been difficult to produce. Current chemical drugs, such as antibiotics, used to combat infectious diseases are threatened by bacterial abilities to quickly mutate into a drug-resistant form. Concern also exists for purposefully genetically modified organisms used for terrorist attacks. Consequently, there is a need to constantly develop new chemical drugs for fighting infectious diseases caused by new biological agents. As we know more about human genomics, many new drugs, whether small-molecule chemicals or large proteins, can be developed to better target the diseases.¶ Rapid production of small-molecule drugs will require the development of new organic reactions that maximally increase chemical complexity and that are highly selective. Advances in automation and miniaturization will be required to expedite discovery of synthesis sequences for large-scale drug preparation.

Mutations ensure extinction

Yu 9

Victoria Yu, Dartmouth Journal of Undergraduate Science, “Human Extinction: The Uncertainty of Our Fate”, 5-22-09 http://dujs.dartmouth.edu/spring-2009/human-extinction-the-uncertainty-of-our-fate

A pandemic will kill off all humans.¶ In the past, humans have indeed fallen victim to viruses. Perhaps the best-known case was the bubonic plague that killed up to one third of the European population in the mid-14th century (7). While vaccines have been developed for the plague and some other infectious diseases, new viral strains are constantly emerging — a process that maintains the possibility of a pandemic-facilitated human extinction.¶ Some surveyed students mentioned AIDS as a potential pandemic-causing virus. It is true that scientists have been unable thus far to find a sustainable cure for AIDS, mainly due to HIV’s rapid and constant evolution. Specifically, two factors account for the virus’s abnormally high mutation rate: 1. HIV’s use of reverse transcriptase, which does not have a proof-reading mechanism, and 2. the lack of an error-correction mechanism in HIV DNA polymerase (8). Luckily, though, there are certain characteristics of HIV that make it a poor candidate for a large-scale global infection: HIV can lie dormant in the human body for years without manifesting itself, and AIDS itself does not kill directly, but rather through the weakening of the immune system. ¶ However, for more easily transmitted viruses such as influenza, the evolution of new strains could prove far more consequential. The simultaneous occurrence of antigenic drift (point mutations that lead to new strains) and antigenic shift (the inter-species transfer of disease) in the influenza virus could produce a new version of influenza for which scientists may not immediately find a cure. Since influenza can spread quickly, this lag time could potentially lead to a “global influenza pandemic,” according to the Centers for Disease Control and Prevention (9). The most recent scare of this variety came in 1918 when bird flu managed to kill over 50 million people around the world in what is sometimes referred to as the Spanish flu pandemic. Perhaps even more frightening is the fact that only 25 mutations were required to convert the original viral strain — which could only infect birds — into a human-viable strain (10).

### Uniqueness

Nuclear power dying – Fukushima, natural gas, recession

Matthew L. Wald, “Nuclear Power’s Death Somewhat Exaggerated,” New York Times, April 10, 2012, http://www.nytimes.com/2012/04/11/business/energy-environment/nuclear-powers-death-somewhat-exaggerated.html, accessed 7-8-2012.

NUCLEAR energy is going through an odd patch. It refuses to die, but it does not prosper. This is how modest the nuclear industry’s prospects now look: Senator Lamar Alexander, a Tennessee Republican who has called for building 100 reactors in the next few years, told a conference of industry specialists in late March that the long-ballyhooed “nuclear renaissance” did not really exist anymore. Now, he said, it is an “awakening to the awareness of nuclear.” But it is an awakening with a price of $30 billion or more. Mr. Alexander was speaking to a conference convened on the 33rd anniversary of the Three Mile Island accident, a few weeks after the Nuclear Regulatory Commission gave permission to build a power reactor for the first time in more than 30 years, for the twin Vogtle reactors near Augusta, Ga. Those will cost $14 billion, if all goes well, and more if it does not. A few days after he spoke, the commission approved a license for another pair of reactors in South Carolina, which will cost about the same. Several other companies are laying out hundreds of millions of dollars in planning for reactors that may or may not get to the groundbreaking stage. The industry’s three great recent stumbling blocks, the Fukushima accident of March 2011, the exceptionally low price of natural gas and a recession that has stunted demand for power, mock the idea that dozens of new reactors are waiting in the wings. But in an era of worry over global warming, support is plentiful for at least keeping a toe in the water.

NRC is not licensing

Reuters, 8-7-2012, “Nuclear Power Plant License Renewals Decision Suspended By NRC,” Huffington Post, http://www.huffingtonpost.com/2012/08/08/nuclear-power-plant-license\_n\_1753931.html?utm\_hp\_ref=green

U.S. regulators on Tuesday suspended issuing final decisions on new licenses and on license renewals for nuclear power plants until the agency decides how to deal with the thorny issue of spent nuclear fuel. The order from the Nuclear Regulatory Commission - headed by Allison Macfarlane, a nuclear waste expert - will not stop hearings or other work on licensing activity and no license decisions are imminent, an NRC spokesman said. The U.S. Court of Appeals for the District of Columbia Circuit in June struck down the NRC's so-called "waste confidence" provisions, saying the NRC violated the National Environmental Policy Act (NEPA) in issuing its 2010 update to the Waste Confidence Decision and accompanying Temporary Storage Rule. The court remanded the case for further consideration. "Waste confidence undergirds certain agency licensing decisions, in particular new reactor licensing and reactor license renewal," the NRC commissioners said in the order. "In recognition of our duties under the law, we will not issue licenses dependent upon the Waste Confidence Decision or the Temporary Storage Rule until the court's remand is appropriately addressed," the order said. Licensing reviews and proceedings will continue to move forward, the NRC said. The NRC staff is expected to provide the commission with options on the waste confidence issue within weeks, but there is no timetable for commission action, the spokesman said. Nuclear critics hailed the action, which they said would affect eight plant license renewals, nine applications to build new reactors, one operating license and one early site permit.

1. Electricity prices are still decreasing in relation to the market – price shifts are stable and only due to weather

EIA, “SHORT-TERM ENERGY AND WINTER FUELS OUTLOOK,” U.S. Energy Information Administration, October 10, 2012, <http://www.eia.gov/forecasts/steo/report/electricity.cfm>, accessed 10-25-2012.

During this past winter, U.S. heating degree days during the fourth quarter of 2011 and the first quarter of 2012 totaled 18 percent below the 30-year normal. Temperatures this winter are expected to be colder than last winter. In particular, projected heating degree days in the southern states, where a majority of homes heat with electricity, are 27 percent higher than last winter. As a result of the colder weather, EIA projects retail sales of electricity to the residential sector this winter will average 6.2 percent more than retail sales last winter. U.S. Electricity Generation¶ Natural gas prices have risen steadily since this past spring. In September, the Henry Hub price averaged $2.85 per million Btu, which was 46 percent higher than the average in April. With higher natural gas prices EIA expects natural gas to lose some of its recent gains in electricity generation market share. The share of total generation fueled by natural gas in the fourth quarter of 2012 is projected to average 27.8 percent compared with 25.4 percent during the same period last year. By the beginning of 2013, higher natural gas prices should contribute to year-over-year declines in natural gas's share of total generation. EIA expects natural gas to fuel 25.8 percent of generation during the first quarter of 2013, which is 2.8 percentage points lower than during the first quarter of 2012. U.S. Electricity Retail Prices¶ EIA expects the nominal U.S. residential electricity price will rise by 0.4 percent during 2012 to an average of 11.84 cents per kilowatthour. During 2013, U.S. residential retail electricity prices increase 1.3 percent over the average 2012 price. When measured in real terms, the U.S. residential electricity price declines by 1.7 percent in 2012 and by 0.3 percent in 2013.

2. Even if electricity prices rise, it will be small and stable with the broader trend still being a decline in prices

EIA, “Short-term energy outlook," September 11, 2011, http://www.eia.gov/forecasts/steo/report/electricity.cfm

EIA expects the nominal U.S. residential electricity price will rise by 1.0 percent during 2012 to an average of 11.91 cents per kilowatthour. During 2013, U.S. residential retail electricity prices increase 0.9 percent over the average 2012 price. When measured in real terms, the U.S. residential electricity price declines by an annual average of 0.8 percent in both 2012 and 2013.

3. U.S. court decisions guarantee no regulation-induced price increases

Platts Energy Week 8/27/12 ("Platts Energy Week TV: Analyst Sees $2 drop in U.S. Electricity Prices," http://www.platts.com/PressReleases/2012/082712/No)

A U.S. federal court decision last week striking down the Environmental Protection Agency's (EPA) attempt at regulating interstate emissions from coal-fired power plants will likely mean electricity prices will drop between $1 and $2 per megawatt hour (MWh) over the next two years, an analyst for Standard & Poor's said Sunday on the all-energy news and talk program Platts Energy Week.

4. Their evidence is a snapshot of U.S. energy markets – prefer predictive evidence accounting for inflation

ACCCE 12 (American Coalition for Clean Coal Electricity, "Energy Cost Impacts on American Families,

2001-2012," Feb., http://www.americaspower.org/sites/default/files/Energy\_Cost\_Impacts\_2012\_FINAL.pdf)

Electricity is the bargain among all consumer energy products. Among consumer ¶ energy goods and services, electricity has maintained relatively lower annual ¶ average price increases compared to residential natural gas and gasoline. ¶ Electricity prices have increased by 51% in nominal dollars since 1990, well ¶ below the 72% rate of inflation in the Consumer Price Index. The nominal prices ¶ of residential natural gas and gasoline have nearly doubled and tripled, ¶ respectively, over this period.

5. Any increase in natural gas prices is managed on electric bills through a switch back to coal which is decreasing in price

Scott DiSavino, “U.S. utilities may return to coal as natgas prices rise,” Reuters, September 27, 2012, <http://in.reuters.com/article/2012/09/27/us-utilities-coal-gas-idINBRE88Q11S20120927>, accessed 10-25-2012.

The recent rise in U.S. natural gas prices and decline in coal prices is set to put a dent in demand for natural gas as some utilities resume using more coal to generate electricity.¶ A mild winter that left a huge amount of gas in inventory and record-high natural gas production pushed prices to 10-year lows in April, luring power companies away from coal.¶ But the spread between NYMEX Central Appalachian coal and Henry Hub natural gas futures on Thursday reached its widest in more than a year as gas prices rebounded from lows plumbed earlier this year, making gas less of a bargain.¶ The relative price difference on Thursday reached $1.25 per million British thermal units (mmBtu), according to Reuters data -- the widest since August 2011, which could be enough to discourage more use of natural gas in electricity generation.¶ Energy traders have said it costs about $1 per mmBtu to transport Eastern coal, so when natural gas prices are higher and the coal discount is over $1 per mmBtu, it starts to make economic sense to burn coal rather than natural gas.¶ If the coal-to-gas spread reaches $2 mmBtu (with gas $2 more expensive than coal) it would be the first time it was that wide since January 2011.¶ In April, natural gas, historically more expensive than coal, traded at a 10-year low of $1.902 due to oversupply, while coal fetched about $2.13, according to the Reuters data. The 22-cent discount was the lowest since 2001.¶ Since then, gas prices have rebounded to $3.28 per mmBtu, but coal, which is typically priced per ton, dipped to about $52 per short ton, or the gas price equivalent of $2.03 per mmBtu.¶ Some power plants are already moving back to coal, a trend set to increase with gas prices expected to continue rising ahead of the peak-demand winter heating season.¶ The biggest U.S. coal-fired power companies include units of American Electric Power Co Inc (AEP.N), Duke Energy Corp (DUK.N), Tennessee Valley Authority, Southern Co (SO.N), Xcel Energy Inc (XEL.N), NRG Energy Inc (NRG.N), GenOn Energy Inc (GEN.N) and FirstEnergy Corp (FE.N).

### A/T AFF Solves Manuf.

Prefer our internal link – energy is the key factor in U.S. manufacturing – plan reverses a positive trend in manufacturing

Robert Schoenberger, Plain Dealer, "Shale gas boom could bring manufacturing jobs back to U.S., economists say," May 31, 2012, http://www.cleveland.com/shalegas/index.ssf/2012/05/shale\_gas\_boom\_could\_bring\_man.html

"By 2025, the manufacturing sector alone could save $11.5 billion in energy costs," Robert McCutcheon, an economist with consulting group PwC, said at a manufacturing summit hosted by the Federal Reserve Bank of Cleveland. McCutcheon's company, formerly called PriceWaterhouseCoopers, released a study late last year predicting that as many as 1 million new U.S. manufacturing jobs could come from lower-cost energy.¶ "If we save $11.5 billion, that's investment capital that could be redirected elsewhere," McCutcheon added.¶ Cleveland Fed President and Chief Executive Sandra Pianalto said manufacturing businesses have been leading the economic recovery in the United States for the past two years, but she added that job growth hasn't been as strong as profit and sales growth. To add jobs, the sector needs to attract new manufacturers and bring production back to the United States from other countries.¶ That's where shale gas and cheap energy could come in.¶ Pianalto said one steel producer told her recently that energy costs in North America are one-third the cost of European steel plants [reporter's note: an earlier version of this story said U.S. costs were one-tenth of Europe's. Pianalto's office said the Cleveland Fed chief went over her notes and found that one-third was the more accurate figure]. Those costs, coupled with weak demand, has ArcelorMittal expanding in Ohio while it cuts production in Europe. Several other steel plants in the region have also increased production to sell pipeline tubes and other parts to oil and gas companies.¶ Marianne Kah, chief economist for energy company ConocoPhillips, called the ongoing shale boom the "most significant change in the energy industry since the 1940s."¶ Kah said over the past five years, energy companies have learned that most of their early predictions on shale gas were wrong. The companies knew that there were huge reserves of oil and gas trapped within hard rocks that needed to be hydraulically fractured to release that energy, but they vastly overestimated the costs of doing that.¶ Production in Texas and Pennsylvania has produced far more gas, far more cheaply than the industry expected, and gas prices are now near historic lows. Low gas costs have drawn huge interest from chemical companies that convert natural gas into plastics and other materials. In March, Shell Oil said it would build a multi-billion petrochemical refinery near Pittsburgh. Several other chemical plants have announced shale-related expansions.¶ "And these are the very early days. We're likely to learn a lot more about how to optimize this process" and lower production costs in the future, she added.¶ From a competitive standpoint, she said shale is already making the United States a more attractive place to do business. Natural gas prices are lower here than in China, Germany of Great Britain.¶ William Strauss, senior economist for the Federal Reserve Bank of Chicago, said the boom has meant U.S. electricity prices are the lowest of any industrial nation in the world. Those low energy prices could help the country lure back work sent to Asia over the years where low-cost labor has been the draw. Strauss said labor is still cheaper overseas, but the total production costs can be higher after figuring in energy and the cost to ship goods across the Pacific Ocean.

Energy matters more than any other factor for manufacturers – even labor costs

Alan Krueger, Chairman @ Council of Economic Advisers, "Reversing the Middle-Class Jobs Deficit," April 26, 2012, http://www.whitehouse.gov/sites/default/files/reversing\_the\_middle-class\_jobs\_deficit.pdf

I recently visited one of Parkdale Mills’s textile plants in Sanford, NC. Textiles is literally the ¶ world’s oldest manufacturing industry. For decades, American textiles companies have been ¶ under intense competition from lower cost labor abroad. This factory was recently reopened. ¶ Parkdale Mills operates 30 plants in 7 states in the U.S., and does most of its production here. ¶ The company’s CEO, Anderson Warlick, told me that the company has survived by continually ¶ raising productivity. The plant floor is a matrix of buzzing computer-operated machines that ¶ take raw cotton bolls and convert them into enough cotton fabric to make 1 million tee-shirts a ¶ week.¶ Mr. Warlick told me that the factory spends more money on electricity than labor. This is an ¶ example of how the President’s commitment to develop safe domestic energy sources, including ¶ natural gas, dovetails with his manufacturing initiative. The U.S. has among the lowest ¶ electricity costs in the world, and the remarkable fall in natural gas prices resulting from new ¶ extraction techniques has put further downward pressure on electricity prices. When I spoke to Mr. Warlick last week he told me that one of the biggest obstacles he faced was ¶ finding enough workers with the right skills. The company often hires workers who were trained ¶ at local community colleges. ¶ Mr. Warlick also told me something that a lot of CEO’s have been telling us at the White House ¶ – that more and more manufacturing companies are considering shifting their production back to ¶ the U.S. This emerging phenomenon is known as reshoring.

### Link

2. High risk of nuclear energy means rates increase immediately, people start shifting away from natural gas – advanced cost recovery, breaks down consumer protection

Cooper 3/19/12 (Mark, Senior Fellow for Economic Analysis, Institute for Energy and the Environment - Vermont Law School, "Nuclear Power," http://iowa.sierraclub.org/Nuclear/nuclearhome.htm)

The effort by the Senate Commerce Committee to put a consumer protection band aid over a high caliber bullet hole in the heart of traditional ratepayer protection only makes the absurdity of the early cost recovery for nuclear reactors even more apparent.¶ Because the bill removes nuclear power from “traditional ratemaking principles or traditional cost recovery mechanisms,” consumer bills will increase dramatically. As passed out of Committee:¶ · Mid-American customers will be forced to pay for nuclear reactors long before they produce any electricity with no hope of recovering those prepayments should the reactors not be completed.¶ · The IUB is not allowed to reject the utility-determined level of prepayments because there are less costly alternatives available.¶ · Although the risk of building and operating a nuclear reactor is shifted to ratepayers, the utility is guaranteed a rate of return that will be higher than it earns on other projects.¶ This mismatch of risk and reward gives the utility strong incentives to maximize profits at the expense of ratepayers and strips the Utility Board of the powers necessary to protect ratepayers. Notwithstanding the amendments, the harmful effects identified by the Staff of the Utility Board in the original bill are still in place.¶ · By conferring a special advantage on nuclear, it threatens to distort the utility and regulatory decision making process and gives utilities an incentive to choose investments and make construction decisions that harm ratepayers.¶ · Beyond the initial choice of projects, shifting the risk of nuclear reactor construction onto the backs of ratepayers creates an ongoing problem because it diminishes the incentive to drive a hard bargain with vendors that protects ratepayers or recover costs from joint owners.¶ · By excusing nuclear reactors from rigorous comparative analysis of alternatives, it all but guarantees less costly alternatives will be passed over.¶ · Because nuclear reactors are so risky and impossible to finance in normal capital market, the utilities are pushing for advanced and guaranteed recovery of all costs, but certainty denies regulators the flexibility that is needed in an uncertain and rapidly changing environment and ties the hands of the IUB in its efforts to balance the interest of ratepayers and utility shareholders.¶ · The need to accelerate cost recovery creates severe intergenerational inequities in cost recovery, violating the fundamental principle that those who consume the output of a plant should bear its costs.¶ · Having guaranteed utilities cost recovery on an annual basis, the IUB will be under greater pressure to approve “incremental” additions to cost even when those costs are the result of utility error.¶ In its press release, MidAmerican trumpets the fact that “MidAmerican Energy Iowa’s electric customers have enjoyed stable base electricity rates for 16 years” and takes credit for that accomplishment. It conveniently ignores the important role that traditional ratemaking principles and traditional cost recovery mechanism have played in ensuring utilities deliver least cost power. By excusing the most risky, high cost options available today from those principles, this bill destroys the consumer protections that have produced stable rates in the past. The inevitable result will be that the future rates paid by MidAmerican electricity customers will be higher than they could and should be.

3. Even failed projects jack up costs – high upfront costs guarantees that ratepayers bear the burden

Travis Madsen et al, Analyst @ Frontier Group and Maryland PIRG Foundation, Johanna Neumann @ Maryland PIRG Foundation, and Emily Rusch @ CalPIRG Education Fund, "The High Cost of Nuclear Power," 2009, http://www.nirs.org/nukerelapse/calvert/highcostnpower\_mdpirg.pdf

N o power company has successfully ¶ ordered a nuclear reactor in the ¶ United States since 1973. Despite¶ promises of power that would be “too ¶ cheap to meter,” the last generation of ¶ nuclear reactors ran aground on skyrocketing construction costs. Of 75 nuclear¶ reactors completed between 1966 and¶ 1986, the average reactor cost more than¶ triple its original construction budget.¶ 1¶ Later-built reactors came in as much ¶ as 1,200 percent over-budget.¶ 2¶ In 1985,¶ Forbes magazine wrote that “the failure ¶ of the U.S. nuclear power program ranks ¶ as the largest managerial disaster in business history, a disaster on a monumental ¶ scale.”¶ 3¶ Electricity customers ended up paying¶ the price. Only one-half of the reactors¶ proposed were ever built, and ratepayers ¶ often had to bear the costs of abandoned ¶ projects. Where reactor projects were¶ completed, rates often increased. Finally,¶ during the restructuring of the electricity ¶ industry in the 1990s, ratepayers were¶ saddled with billions in “stranded costs” ¶ from failed investments in nuclear power, ¶ saving nuclear power plant owners (and¶ their shareholders) from huge losses.

## CASE

### STEM

Focus on fusion reverses this trend

Peter Linnell, “Is nuclear power a waste of talent?,” July 4, 2008, <http://www.lifespacedesign.co.uk/B1.pdf>, accessed 10-27-2012.

The UK has a crisis in STEM subject education, which has led to a skills crisis in the¶ existing nuclear industry. Steps taken to overcome shortages have yet to show evidence¶ of success ( ten years after the NII audit ). It is irrational to claim that a problem is solved¶ by pointing to the effort being made to solve it ( cf. Fusion power). The precautionary¶ principle suggests newly qualified nuclear expertise be prioritised to waste management¶ and decommissioning. ¶ First blush examination of existing UK capacity suggests a multi GWp capacity in PV could¶ be achieved without adverse skills impacts. To expand the nuclear industry by recruiting¶ skills from overseas may be an option, if politically acceptable. Any claim that the nuclear¶ industry will create significant additional high tech jobs for the UK is challenged. In terms of¶ political/investment choices for new UK generating capacity nuclear demands a more¶ concentrated application of scarce skills for a far greater time before any power is actually¶ produced, and continues to make demands into an indefinite future.

Conventional Weapons solve deterrent effects

Gerson ‘9 (CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE RETHINKING U.S. NUCLEAR POSTURE MODERATOR: JAMES ACTON, ASSOCIATE, NONPROLIFERATION PROGRAM, CARNEGIE ENDOWMENT SPEAKERS: MICHAEL S. GERSON, RESEARCH ANALYST, CENTER FOR NAVAL ANALYSES Transcript by Federal News Service Washington, D.C.

The National Academy of Sciences report on the future of U.S. nuclear weapons policy advocated “no first use.” Again, along these lines that the major conventional threat had disappeared, therefore we didn’t need to rely on the threat of nuclear weapons to deter – to help to bolster deterrence of a conventional attack. Moreover, the conventional capability – U.S. conventional superiority demonstrated so well in the first Gulf War made it such that conventional capabilities were absolutely sufficient for deterrence. Even Paul Nitze, one of the architects of NSC- 68 in 1994 asked “is it time to junk our nukes?” His argument was smart conventional weapons should be the principal U.S. deterrent. They’re safer, they cause less collateral damage, they provide more flexibility, there’s less risk of escalation, and perhaps most importantly, they’re highly credible. So people who had once concocted rather elaborate scenarios for nuclear war-fighting came around to this view, that smart conventional weapons would be the principal deterrent, whereas those in favor of no-first-use advocated one set of use.

### Fusion

Transmission costs provide anti-nuclear groups cover to kill ITER

Jürgen Trittin is Chairman of the Green Party in the German Parliament and a former federal environment minister.3-8-2012 ABC Environemtn “No Nuclear Please We’re German” http://www.abc.net.au/environment/articles/2012/03/08/3448020.htm

More needs to be done to accelerate the post-nuclear transition. More money from the EU budget now goes to nuclear research than to non-nuclear research and development, and more infrastructure funding goes to carbon capture and storage (CCS) and conventional energy than to renewable energies. The forthcoming negotiations on the EU's 2014-2020 European budget are an opportunity to change direction and cut the funding for unpromising mega-projects like the International Thermonuclear Experimental Reactor (ITER) effort in southern France. Shifting to renewable-energy sources will require enormous effort and major infrastructure investment. High-voltage transmission lines across the EU and storage facilities to overcome the problem of meeting basic energy demands will be crucial, as will decentralised distribution grids and higher investment in energy conservation. Germany has taken the first step, but the transition to a fully renewable-energy-based economy must be a common European effort.

# 1NR

### fusion advantage

#### SQ Naval Radar solves

TPCW 6-30-2012 Coming war between Iran and U.S. over the Strait of Hormuz http://www.teapartyculturewar.com/BlogRetrieve.aspx?BlogID=12050&TagID=214229

The Sunburn is versatile and easy to use. It can be fired from practically any platform, including the back of a flatbed truck. It has a 100-mile range, which is all that is necessary in the narrow Persian Gulf. If Iran and the U.S. start a shooting war, Russia and China will watch with tremendous interest. The Iranians will have mapped every firing angle along their Gulf coastline. The rugged terrain will not make detection easy. Some suggest it will be like shooting fish in a barrel. The British have deployed the HMS Daring, a billion destroyer, with the world’s most sophisticated naval radar, and defense weapons which can shoot down sea skimming missiles.

#### Would be deployed (ext)

Stuart Littlewood, British Writer-Photographer 2011 Persian Gulf warmongers get nasty shock http://edition.presstv.ir/iphone/detail.aspx?id=229255

Britain recently announced the deployment of HMS Daring, a new Type 45 destroyer, to the Persian Gulf in order to send a significant message to the Iranians because of the firepower and world-beating technology carried by this warship. A Daily Telegraph report says she has been fitted with new technology that will give it the ability to "shoot down any missile in Iran's armory. The £1 billion destroyer also carries the world's most sophisticated naval radar, capable of tracking multiple incoming threats from missiles to fighter jets." Her 48 Sea Vipers can shoot down fighters as well as sea skimming missiles. Apart from HMS Daring, Britain is believed to have at least 3 other vessels in the Persian Gulf, and more can be sent. Are they all equipped with the same world-beating technology?

### R&D CP

#### Ice-age is a myth.

Thomas C. Peterson et. al, September 2008, is a research meteorologist at NOAA's National Climatic Data Center in Asheville, NC. He is a lead author on the IPCC Fourth Assessment Report, a member of the GCOS Atmospheric Observation Panel for Climate, lead author on CCSP Product, William M. Connolley is a Senior Scientific Officer in the Physical Sciences Division in the Antarctic Climate and the Earth System project at the British Antarctic Survey, where he worked as a climate modeler, and John Fleck writes about science for the Albuquerque Journal, American Meterological Society (AMS), “The Myth of The 1970s Global Cooling Scientific Consensus,” <http://journals.ametsoc.org/doi/pdf/10.1175/2008BAMS2370.1>

There was no scientific consensus in the 1970s that the Earth was headed into an imminent ice age. Indeed, the possibility of anthropogenic warming dominated the peer-reviewed literature even then. When climate researcher Reid Bryson stood before the members of the American Association for the Advancement of Science in December 1972, his description of the state of scientists ‘understanding of climate change sounded very much like the old story about the group of blind men trying to describe an elephant. The integrated enterprise of climate science as we know it today was in its infancy, with different groups of scientists feeling blindly around their piece of the lumbering climate beast. Rigorous measurements of increasing atmospheric carbon dioxide were available for the first time, along with modeling results suggesting that global warming would be a clear consequence. Meanwhile, newly created global temperature series showed cooling since the 1940s, and other scientists were looking to aerosols to explain the change. The mystery of waxing and waning ice ages had long entranced geologists, and a cohesive explanation in terms of orbital solar forcing was beginning to emerge. Underlying this discussion was a realization that climate could change on time scales with the poten-tial for significant effects on human societies, and that human activities could trigger such changes (Bryson 1974). Bryson laid out the following four questions that still stand today as being central to the climate science enterprise: i) How large must a climate change be to be important? ii) How fast can the climate change? iii) What are the causal parameters, and why do they change? iv) How sensitive is the climate to small changes in the causal parameters? Despite active efforts to answer these questions, the following pervasive myth arose: there was a consensus among climate scientists of the 1970s that either global cooling or a full-f ledged ice age was imminent (see the “Perpetuating the myth” sidebar). A review of the climate science literature from 1965 to 1979 shows this myth to be false.

#### No such thing as quick fusion.

Tom Blees, 2008, the president of the Science Council for Global Initiatives, member of the selection committee for the Global Energy Prize, Prescription for the Planet, p. 97

There’s an old joke among nuclear physicists that says practical fusion is only about forty years away…and always will be. Yeah, I know, those physics jokes are real knee-slappers, aren’t they? Did you hear the one about Werner Heisenberg getting pulled over for speeding?99 But I digress. Estimates of fusion reactor deployment from the physicists and engineers most knowledgeable about the subject range from about forty to a hundred years. Maybe we’ll be surprised and they’ll be able to do it sooner. But unfortunately our planet doesn’t seem inclined to give us the time. While continuing research into fusion power makes sense both from a pure research standpoint and as a long-term solution to provide earth’s inhabitants with clean, safe, and unlimited power in the future, we’d better do something serious with the technologies available to us today.

#### Doesn’t solve waste and accidents – waste and plasma.

Francois Cellier, 11-10-2009, MS in electrical engineering, PhD degree in technical sciences from the Swiss Federal Institute of Technology (ETH) Zurich, worked at the University of Arizona as professor in electrical engineering, specialization in modeling and simulation methodologies, specialist in modeling and simulation of physical systems at the Institute of Computational Science, The Oil Drum: Europe, “The Future of Nuclear Energy: Facts and Fiction - Part IV: Energy from Breeder Reactors and from Fusion?,” <http://www.iseof.org/~europe/node/5929#Ref_31>

Commercial energy production requires steady state fusion conditions for a deuterium-tritium plasma on a scale comparable to that of today's standard nuclear fission reactors with outputs of 1 GW (electric) and about 3 GW (thermal) power. The current ITER proposal foresees a thermal power of only 0.4 GW using a plasma volume of 840 m3 . Originally it was planned to build ITER with a plasma volume of 2000 m3 corresponding to a thermal fusion power of 1.5 GW, but the fusion community soon realized that the original ITER version would never receive the required funding. Thus a smaller, much less ambitious version of the ITER project was proposed and finally accepted in 2005. The 1 GW (el) fission reactors of today function essentially in a steady state operation at nominal power and with an availability time over an entire year of roughly 90%. The deuterium-tritium fusion experiments have so far achieved short pulses of fusion power of 15 MW (therm) for one second and 4 MW (therm) for 5 seconds, corresponding to a liberated thermal energy of 5 kWh [34]. The Q-value (produced energy over input energy) for these pulses was 0.65 and 0.2, respectively. If everything works according to the latest plans [35], it will be 2018 when the first plasma experiments can start with ITER. From there, it will take us to 2026, at least another eight years, before the first tritium experiments are tried. The original plans from 2005 are now, even before any serious construction has started, already delayed by four years. In other words, it will take at least 20 years from the agreement by the world's richest countries to construct ITER, before one can ﬁnd out if the goals of ITER, a power output of 0.5 GW (therm) with a Q-value of up to 10 and for 400 seconds, are realistic. Compare that to the original ITER proposal, which was 1.5 GW (therm), with a Q-value between 10-15 and for about 10,000 seconds. ITER proponents explain that the achievement of this goal would already be an enormous success. But this goal, even if it can be achieved by 2026, pales in comparison with the requirements of steady-state operation, year after year, with only a few minor controlled interruptions. Previous deuterium-tritium experiments used only minor quantities of tritium, and yet lengthy interruptions between successive experiments were required, because the radiation from the tri­tium decay was so excessively high. In earlier fusion experiments, such as JET, the energy liberated in the short pulses came from burning (fusing) about 3 micrograms (3 × 10-6 grams) of tritium, starting from a total amount of 20 gr of tritium. This number should be compared with the few kilograms of tritium required to perform the experiments foreseen during the en­tire ITER lifetime and with the still greater quantities that would be required for a commercial fusion reactor. A 400 sec fusion pulse with a power of 0.5 GW corresponds to the burning of 0.035 gr (3.5 × 10-2 grams) of tritium, a very large number, when compared to 3 micrograms, but a tiny number when compared with the yearly burning of 55.6 kilograms of tritium in a commercial 1 GW (therm) fusion reactor. The achieved efficiency of the tritium burning (i.e., the amount that is burned divided by the total amount required to achieve the fusion pulse) was roughly 1 part in a million in the JET experiment and is expected to be about the same in the ITER experiments, far below any acceptable value, if one wants to burn 55.6 kg of tritium per year. Moreover in a steady-state operation, the deuterium-tritium plasma will be "contaminated" with the helium nucleus that is produced, and some instabilities can be expected. Thus a plasma cleaning routine is needed that would not cause noticeable interruptions of production in a commercial fusion plant. ITER proponents know that even their self-defined goal (a 400 second long deuterium-tritium fusion operation within the relatively small volume of 840 m3) presents a great challenge. One might wonder what they think about the difficulties involved in reaching steady-state operation for a full-scale fusion power plant.

#### Space colonization is impossible- diseases .

Barry E. DiGregorio February 2008 Discover Magazine "Deadly Microbes From Outer Space" http://discovermagazine.com/2008/feb/deadly-microbes-from-outer-space

For astronauts toiling in the close quarters of the International Space Station or on a shuttle to Mars, an ordinary germ would be risky enough. But a recent experiment published in the Proceedings of the National Academy of Sciences has shown that a microbe can turn even more dangerous in space than on Earth. In that study, a bacte­rium particularly nasty for humans—salmonella—was shown to become more virulent after just 83 hours of growing in space. The experiment on the space shuttle Atlantis was designed to explore how a lack of gravity affects disease-causing microbes in space. Astronauts aboard the space shuttle grew the salmonella, and back on Earth researchers used it to infect a group of mice. For comparison, bacteria grown in a laboratory on Earth in normal gravity infected another group of mice. The mice infected with the space-grown germs had a mortality rate almost three times higher than that of mice given germs grown in normal gravity. Researchers noticed that while on board the space shuttle, the salmonella encased themselves in a biofilm, a protective coating that is notoriously resistant to anti­biotics. Several follow-up experiments on space shuttle flights over the next few years will look to see whether other bacteria undergo similar changes in virulence in microgravity.

#### Can’t establish colonies- resources are too low quality.

Alan Finkel is a neuroscientist and entrepreneur, and one of the founders of COSMOS. He is the Chief Technology Officer of Better Place Australia, and the Chancellor of Monash University 11 April 2011 “Forget space travel: it's just a dream” Cosmos Magazine http://www.cosmosmagazine.com/features/online/4214/the-future-space-travel?page=0%2C1

The solution, advocated in Cosmos by astrophysicist Paul Davies ("One-way ticket to Mars"), is to encourage one-way missions. Davies' hope is that the colonisers might be able to survive indefinitely by mining oxygen, water, hydrogen and other resources at the destination. While possible in principle, this would be very difficult in practice because of the low grade of the resources. So the most practical solution is to offer people the opportunity to go on a one-way mission, with a peaceful end administered after many months or years of exploration and discovery.

#### No extinction – reject this environmental alarmism.

Amy Kaleita (assistant professor of agricultural and biosystems engineering at Iowa State University) and Gregory Forbes (research analyst at the Pacific Research Institute) 2007 “Hysteria’s History” http://www.undergroundnotes.com/graphics2/Hysteria\_History.pdf

Apocalyptic stories about the irreparable, catastrophic damage that humans are doing to the natural environment have been around for a long time. These hysterics often have some basis in reality, but are blown up to illogical and ridiculous proportions. Part of the reason they’re so appealing is that they have the ring of plausibility along with the intrigue of a horror flick. In many cases, the alarmists identify a legitimate issue, take the possible consequences to an extreme, and advocate action on the basis of these extreme projections. In 1972, the editor of the journal Nature pointed out the problem with the typical alarmist approach: “[Alarmists’] most common error is to suppose that the worst will always happen.”82 But of course, if the worst always happened, the human race would have died out long ago. When alarmism has a basis in reality, the challenge becomes to take appropriate action based on that reality, not on the hysteria. The aftermath of Silent Spring offers examples of both sorts of policy reactions: a reasoned response to a legitimate problem and a knee-jerk response to the hysteria. On the positive side, Silent Spring brought an end to the general belief that all synthetic chemicals in use for purposes ranging from insect control to household cleaning were uniformly wonderful, and it ushered in an age of increased caution on the appropriate use of chemicals. In the second chapter of her famous book, Carson wrote, “It is not my contention that chemical insecticides must never be used. I do contend that… we have allowed these chemicals to be used with little or no advance investigation of their effect on soil, water, wildlife, and man himself.” In this passage, Carson seemed to advocate reasoned response to rigorous scientific investigation, and in fact this did become the modern approach to environmental chemical licensure and monitoring. An hour-long CBS documentary on pesticides was aired during the height of the furor over Silent Spring. In the documentary, Dr. Page Nicholson, a water-pollution expert with the Public Health Service, wasn’t able to answer how long pesticides persist in water once they enter it, or the extent to which pesticides contaminate groundwater supplies. Today, this sort of information is gathered through routine testing of chemicals for use in the environment. 20 V: Lessons from the Apocalypse However, there was, as we have seen, a more sinister and tragic response to the hysteria generated by Silent Spring. Certain developing countries, under significant pressure from the United States, abandoned the use of DDT. This decision resulted in millions of deaths from malaria and other insect-borne diseases. In the absence of pressure to abandon the use of DDT, these lives would have been spared. It would certainly have been possible to design policies requiring caution and safe practices in the use of supplemental chemicals in the environment, without pronouncing a death sentence on millions of people. A major challenge in developing appropriate responses to legitimate problems is that alarmism catches people’s attention and draws them in. Alarmism is given more weight than it deserves, as policy makers attempt to appease their constituency and the media. It polarizes the debaters into groups of “believers” and “skeptics,” so that reasoned, fact-based compromise is difficult to achieve. Neither of these aspects of alarmism is healthy for the development of appropriate policy. Further, alarmist responses to valid problems risk foreclosing potentially useful responses based on ingenuity and progress. There are many examples from the energy sector where, in the presence of demands for economy, efficiency, or less pollution, the marketplace has responded by developing better alternatives. That is not to say that we should blissfully squander our energy resources; on the contrary, we should be careful to utilize them wisely. But energy-resource hysteria should not lead us to circumvent scientific advancement by cherry-picking and favoring one particular replacement technology at the expense of other promising technologies. Environmental alarmism should be taken for what it is—a natural tendency of some portion of the public to latch onto the worst, and most unlikely, potential outcome. Alarmism should not be used as the basis for policy. Where a real problem exists, solutions should be based on reality, not hysteria.

## topicality

### 1NR counter-interpretation

#### Fusion is “basic reaserch” NOT applied – their author

EIA 99 [Energy Information Administration / Federal Energy Market Interventions 1999: Primary Energy, “3. Federal Energy Research and Development”, [http://www.eia.gov/oiaf/servicerpt/subsidy/pdf/research.pdf)](http://www.eia.gov/oiaf/servicerpt/subsidy/pdf/research.pdf%29)]

Basic Research

Basic Energy Research

General Science . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1,672.8 2,059.3 1,624.2

General Energy Science . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1,004.1 999.4 821.8

Environment, Safety, and Health . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 585.3 161.6 47.4

Unallocated . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 47.4 68.8 49.8

Fusion Energy Sciences . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 872.5 379.1 222.6

Total Basic Research Appropriations . . . . . . . . . . . . . . . . . . . . . . . . . . . 4,182.1 3,668.1 2,765.9

Applied Research and Development

Nuclear Power

New Nuclear Plants (Nuclear Energy Research Initiative) . . . . . . . . . . . . 139.2 221.2 30.0

Waste/Fuel/Safety (Environmental Management) . . . . . . . . . . . . . . . . . . 707.1 754.6 466.6

Unallocated (Termination Costs) . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 168.6 155.9 143.0

Total . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1,014.9 1,131.7 639.6

Coal

Advanced Clean Efficient Power Systems . . . . . . . . . . . . . . . . . . . . . . . 168.3 166.4 87.7

Advanced Clean Fuels . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 57.8 57.1 15.5

Advanced Research and Technology Development . . . . . . . . . . . . . . . . . 92.8 91.8 19.9

Interagency National Acid Precipitation Assessment Programb . . . . . . . . 35.4 35.4 (c)

Unallocated . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 90.0 121.1 97.1

Total . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 444.3 471.7 220.2

Other Fossil Energy

Oil . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 58.6 57.8 48.6

Shale Oil . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6.5 6.7 0.0

Natural Gas . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 14.4 14.2 115.2

U.S. Geological Survey Energy Research and Developmentb . . . . . . . . . 29.7 29.7 (c)

Total . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 109.2 108.3 163.8

Renewable Energy

Wind, Photovoltaic, and Other Solar . . . . . . . . . . . . . . . . . . . . . . . . . . . 156.3 135.9 133.9

Biofuels and Biomass . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 24.4 44.5 95.5

Geothermal . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 31.0 30.7 28.5

Hydroelectric . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1.2 1.2 3.3

Electricity Technologies . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 43.4 42.9 44.1

Unallocated . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 21.6 20.6 22.0

Total . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 277.9 275.8 327.2

Electric Utility (Advanced Turbine Systems)d . . . . . . . . . . . . . . . . . . . . . . 5.4 5.4 33.0

Total Applied Research and Development Appropriations . . . . . . . . . . . 1,851.7 1,992.9 1,383.8

Clean Coal Outlays . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 184.8 151.7 183.0

Total Applied Research and Development, Including Clean Coal . . . . . . 2,036.5 2,144.6 1,566.8

### A2 energy production

#### R&D doesn’t directly affect energy production- there are a laundry list of goals they can affect, proves the abuse

EIA 7 (Energy Information Administration, "Federal Energy Research and Development," http://www.eia.gov/oiaf/servicerpt/subsidy2/pdf/execsum.pdf)

Research and Development (R&D). Federal R&D spending focuses on a variety of goals, such as increasing U.S. energy supplies, or improving the efficiency of various energy production, transformation, and end-use technologies. R&D expenditures do not directly affect current energy production and prices, but, if successful, they could affect future production and prices.

#### Nuclear energy production exclusively focuses on electricity

Herrsnz, Linares, and Moratilla 8 (L.E. - Unit of Nuclear Safety Research, J.I. and B.Y - Rafael Marino Chair of New Energy Technologies Comillas Pontifical U, "Power cycle assessment of nuclear high temperature gas-cooled reactors," <http://www.ewp.rpi.edu/hartford/users/papers/engr/ernesto/millav/EP/References/Applied%20Thermal%20Engineering%20%5B6%5D.pdf>)

Nonetheless, at present nuclear energy production is almost exclusively focused on electricity generation, which accounts for only 16% of the energy consumed worldwide (being nearly 80% of the remaining energy obtained by burning fossil fuels [3]). Therefore, nuclear energy contribution to overcome issues like depletion and supply shortages of fossil fuels and global warming would be vigorously reinforced if a wider energy market was addressed. Industrial heat consumption is a good candidate to accomplish such a diversity of energy products. However, most of the industrial process heat applications require much higher temperatures than the operating temperatures of present light water reactors (LWR). Besides, the amount of energy required is never more than a few hundred MWs, while the present systems become competitive only for a thermal production of a few thousand MWs.

#### Courts have acknowledged a separation of ENERGY PRODUCTION and experimentation and research in the context of nuclear power

US District Court 99 EVELYN HEINRICH ON BEHALF OF HER HUSBAND GEORGE HEINRICH, HENRY M. SIENKEWICZ, JR., ON BEHALF OF HIS MOTHER EILEEN ROSE SIENKEWICZ, ROSEMARY GUALTIERI ON BEHALF OF HER FATHER JOSEPH MAYNE, WALTER CARL VAN DYKE ON BEHALF OF HIS FATHER WALTER CARMEN VAN DYKE AND ALL OTHERS SIMILARLY SITUATED, PLAINTIFFS, v. WILLIAM H. SWEET, M.D., TRUSTEE OF THE LEE EDWARD FARR TRUST DATED 1/11/71, AS AMENDED, THE ESTATE OF LEE EDWARD FARR, M.D., ASSOCIATED UNIVERSITIES, INC., MASSACHUSETTS GENERAL HOSPITAL, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, AND THE UNITED STATES OF AMERICA, DEFENDANTS. CIVIL ACTION NO. 97-12134-WGY UNITED STATES DISTRICT COURT FOR THE DISTRICT OF MASSACHUSETTS 62 F. Supp. 2d 282; 1999 U.S. Dist. LEXIS 12943 August 16, 1999,

Decided The private defendants, however, argue that two of these tests ought quickly yield a result in their favor. First, although the plaintiffs contend that the private defendants assumed a traditional public function by operating a nuclear reactor, the private defendants argue that the function "traditionally exclusively reserved to the [government]," [id. at 493-94](http://www.lexisnexis.com/lnacui2api/mungo/lexseestat.do?bct=A&risb=21_T15305885381&homeCsi=6323&A=0.23748907765458016&urlEnc=ISO-8859-1&&citeString=84%20F.3d%20487,%20493&countryCode=USA), is that of energy production through the operation of nuclear reactors, not experimentation or research. Likewise, the private defendants believe that the "symbiotic relationship" test is not met [\*\*65] because the Plaintiffs have not alleged that the United States shared in any profits obtained from the complained-of activity, nor have they alleged that the United States mandated the allegedly unconstitutional activity (namely, experimentation without obtaining informed consent). See [id. at 494](http://www.lexisnexis.com/lnacui2api/mungo/lexseestat.do?bct=A&risb=21_T15305885381&homeCsi=6323&A=0.23748907765458016&urlEnc=ISO-8859-1&&citeString=84%20F.3d%20487,%20494&countryCode=USA). Both of these arguments are misplaced. First, the private defendants' distinction between energy production and experimentation does not control [HN32](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1344749943852&returnToKey=20_T15305920652&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.223937.6839398104" \l "clscc32" \t "_self)the traditional public function test. That test asks whether "the private entity assumed powers traditionally exclusively reserved to the State." [Rockwell v. Cape Cod Hosp., 26 F.3d 254, 258 (1st Cir. 1994)](http://www.lexisnexis.com/lnacui2api/mungo/lexseestat.do?bct=A&risb=21_T15305885381&homeCsi=6323&A=0.23748907765458016&urlEnc=ISO-8859-1&&citeString=26%20F.3d%20254,%20258&countryCode=USA) (internal quotations omitted). The use and control of radioactive substances presents a highly unusual factual setting. Under federal law, the possession and use of fissionable materials was not just traditionally reserved to the government, but was legally mandated to be reserved to the government. See Atomic Energy Act of 1946 §§ 4, 5 (prescribing that only the Commission could own a nuclear reactor that was capable of producing "within a reasonable period of time a sufficient quantity of fissionable [\*\*66] material to produce an atomic bomb or any other atomicweapon" and only the Commission could own fissionable materials). In the view of Congress, there were sound policy reasons for this exclusivity: one of the purposes of the Atomic Energy Act of 1946 was to provide "[a] program for Government control of the production, ownership, and use of fissionable material to assure the common defense and security . . . ." Id. at § 1(b)(4). Although the Act clearly contemplated private research activities under Commission supervision and allowed certain small-scale research facilities to be privately owned, such arrangements were required to "contain such provisions to protect health . . . as the Commission may determine." Id. at §§ 3, 4. If, as the Plaintiffs allege, the Commission failed properly to fulfill its duty of supervision as to the boron neutron capture therapy experiments and indeed knowingly approved of experiments that violated the Commission's own professional guidelines, then it is arguable that the Commission "tried to escape its responsibilities by delegating them to private parties." [Rockwell, 26 F.3d at 258](http://www.lexisnexis.com/lnacui2api/mungo/lexseestat.do?bct=A&risb=21_T15305885381&homeCsi=6323&A=0.23748907765458016&urlEnc=ISO-8859-1&&citeString=26%20F.3d%20254,%20258&countryCode=USA). In such a situation, the Court views [\*\*67] the exclusive function test as met.

### A2 EIA financial incentives

#### Your evidence says that R&D has the same goal as a financial incentive but is not one

EIA 1 – US Energy Information Administration (Renewable Energy 2000: Issues and Trends, Report prepared by the US Energy Information Administration, "Incentives, Mandates, and Government Programs for Promoting Renewable Energy", http://tonto.eia.doe.gov/ftproot/renewables/06282000.pdf)

The intended effect of a financial incentive is to increase the production or consumption of the good or service over what it otherwise would have been without the incentive. Examples of financial incentives are: tax¶ credits, production payments, trust funds, and low-cost loans. Research and development is included as a support program because its effect is to decrease cost, thus enhancing the commercial viability of the good(s) provided. 4

### A2 for definition

#### Anything that spends money and supports energy is topical- justifies any financial incentive that helps the economy because it would support an increase in demand for energy production.

EIA, Energy Information Administration, Office of Energy Markets and End Use, U.S. DOE, ‘92

(“Federal Energy Subsidies: Direct and Indirect Interventions in Energy Markets,” ftp://tonto.eia.doe.gov/service/emeu9202.pdf)

In some sense, most Federal policies have the potential to affect energy markets. Policies supporting economic stability or economic growth have energy market consequences; so also do Government policies supporting highway development or affordable housing. The interaction between any of these policies and energy market outcomes may be worthy of study. However, energy impacts of such policies would be incidental to their primary purpose and are not examined here. Instead, this report focuses on Government actions whose prima facie purpose is to affect energy market outcomes, whether through financial incentives, regulation, public enterprise, or research and development.

#### For is a limiting term- has to be exclusive.

Clegg, 95 - J.D., 1981 Yale Law School; the author is vice president and general counsel of the National Legal Center for the Public Interest. (Roger, “Reclaiming The Text of The Takings Clause,” 46 S.C. L. Rev. 531, Summer, lexis)

Even if it made no sense to limit the clause to takings "for public use"--and, as discussed below, it might make very good sense--that is the way the clause reads. It is not at all ambiguous. The prepositional phrase simply cannot be read as broadening rather than narrowing the clause's scope. Indeed, a prepositional phrase beginning with "for" appears twice more in the Fifth Amendment, and in both cases there is no doubt that the phrase is narrowing the scope of the Amendment. n20