### Off

Renewables transition now—

Leonhardt 12—David Leonhardt is the Washington bureau chief of The New York Times, There’s Still Hope for the Planet, NYT, 7-22

Behind the scenes, however, a somewhat different story is starting to emerge — one that offers reason for optimism to anyone worried about the planet. The world’s largest economies may now be in the process of creating a climate-change response that does not depend on the politically painful process of raising the price of dirty energy. The response is not guaranteed to work, given the scale of the problem. But the early successes have been notable. Over the last several years, the governments of the United States, Europe and China have spent hundreds of billions of dollars on clean-energy research and deployment. And despite some high-profile flops, like ethanol and Solyndra, the investments seem to be succeeding more than they are failing. The price of solar and wind power have both fallen sharply in the last few years. This country’s largest wind farm, sprawling across eastern Oregon, is scheduled to open next month. Already, the world uses vastly more alternative energy than experts predicted only a decade ago. Even natural gas, a hotly debated topic among climate experts, helps make the point. Thanks in part to earlier government investments, energy companies have been able to extract much more natural gas than once seemed possible. The use of natural gas to generate electricity — far from perfectly clean but less carbon-intensive than coal use — has jumped 25 percent since 2008, while prices have fallen more than 80 percent. Natural gas now generates as much electricity as coal in the United States, which would have been unthinkable not long ago. The successes make it possible at least to fathom a transition to clean energy that does not involve putting a price on carbon — either through a carbon tax or a cap-and-trade program that requires licenses for emissions. It was exactly such a program, supported by both Barack Obama and John McCain in the 2008 campaign, that died in Congress in 2010 and is now opposed by almost all Congressional Republicans and some coal-state and oil-state Democrats. To describe the two approaches is to underline their political differences. A cap-and-trade program sets out to make the energy we use more expensive. An investment program aims to make alternative energy less expensive. Most scientists and economists, to be sure, think the best chance for success involves both strategies: if dirty energy remains as cheap as it is today, clean energy will have a much longer road to travel. And even an investment-only strategy is not guaranteed to continue. The clean-energy spending in Mr. Obama’s 2009 stimulus package has largely expired, while several older programs are scheduled to lapse as early as Dec. 31. In the current political and fiscal atmosphere, their renewal is far from assured. Still, the clean-energy push has been successful enough to leave many climate advocates believing it is the single best hope for preventing even hotter summers, more droughts and bigger brush fires. “Carbon pricing is going to have an uphill climb in the U.S. for the foreseeable future,” says Robert N. Stavins, a Harvard economist who is a leading advocate for such pricing, “so it does make sense to think about other things.” Those others things, in the simplest terms, are policies intended to help find a breakthrough technology that can power the economy without heating the planet. “Our best hope,” says Benjamin H. Strauss, a scientist who is the chief operating officer of Climate Central, a research group, “is some kind of disruptive technology that takes off on its own, the way the Internet and the fax took off.” Governments have played a crucial role in financing many of the most important technological inventions of the past century. That’s no coincidence: Basic research is often unprofitable. It involves too much failure, and an inventor typically captures only a tiny slice of the profits that flow from a discovery. Although government officials make mistakes when choosing among nascent technologies, one success can outweigh many failures. Washington-financed research has made possible semiconductors, radar, the Internet, the radio, the jet engine and many medical advances, including penicillin. The two countries that have made the most progress in reducing carbon emissions, France and Sweden, have done so largely by supporting nuclear and hydropower, notes Michael Shellenberger, president of the Breakthrough Institute in Oakland, Calif.

Nuclear power trades off with alternative energy.

Cochran and Paine 9—Thomas B. Cochran, Ph.D. Senior Scientist, Nuclear Program, and Christopher E. Paine Director, Nuclear Program Natural Resources Defense Council, Inc. on Nuclear Energy Developments Before the Committee on Energy and Natural Resources United States Senate Washington, D.C. March 18, 2009 Natural Resources Defense Council,

This Committee should reject any broader attempt to use loan guarantees to recapitalize a technically mature industry, or to shift the overall terms of trade in the electricity marketplace in favor of nuclear power. This runs a serious risk of misdirecting investment capital away from commercialization of low-carbon energy technologies that are cheaper, cleaner, and more versatile than currently available nuclear power plants. Shifting the overall terms of energy commerce in favor of low-carbon solutions, nuclear power included, is the task of a climate bill, not the federal loan guarantee program. At best, federal loan guarantees should be construed as bridging the gap between successful prototype development and a foothold in the commercial marketplace, by spreading the risk of the initial capital investments required to bring a new technology to commercial scale.

But federal loan guarantees should not be abused to insulate an entire industry from competition with a host of new energy technologies that promise comprehensive environmental and social benefits. Unlike improvements in efficiency and renewable technologies, nuclear power is a decarbonization solution packaged with a host of noncarbon environmental, security, and waste problems. For these reasons, nuclear power should not be considered for inclusion in any “Renewable Electricity Standard” Congress may legislate.

In sum, the economically inefficient way to mitigate climate change is to broadly subsidize deployment of currently available nuclear power plant technologies. This will crowd out or slow investment in improved energy efficiency, utility-scale renewable electricity supply, and decentralized smart-grid technologies that can mitigate climate change in less time, with less cost and risk. If Congress is unwilling or unable politically to let a climate bill do the work of sorting out the most cost-effective low-carbon energy technologies, one possible way to mitigate economic inefficiency would be to closely couple any additional federal loan guarantees for nuclear with utility commitments to phase out existing coal capacity, such that future electricity demand growth in the affected service area or regional grid must be met in the first instance by large improvements in less costly energy efficiency, and by the development of renewable sources having environmental impacts and a marginal cost of generation less than nuclear power.

Only alternatives solve electricity price spikes and warming.

Madsen et al 9—Travis Madsen and Tony Dutzik of Frontier Group, Bernadette Del Chiaro and Rob Sargent of Environment America Research & Policy Center, Generating Failure, Environment America, November, <http://www.environmentamericacenter.org/sites/environment/files/reports/Generating-Failure---Environment-America---Web.pdf>

Choosing to Build New Reactors Would Divert Resources from More Cost Effective Strategies

Choosing to build new reactors would divert resources from more cost-effective strategies. Building 100 new nuclear reactors could have an up-front cost on the order of $600 billion (with a possible range of $250 billion to $1 trillion). 136 Investing this money in reactor deployment would foreclose opportunities to pursue cheaper and faster options.

New nuclear reactors would be far more costly than other forms of emission-free electricity. Even the most optimistic estimates for the average cost of power from a new nuclear reactor are 300 percent higher than the cost of energy efficiency or the cost of co-firing biomass in an existing power plant, and well above renewable technologies like wind power. Moreover, any new nuclear reactors won’t be operational until well into the next decade, whereas clean energy sources can be deployed now.

The cost advantages that clean energy has over nuclear power are likely to become even more pronounced over time, while we wait for the nuclear industry to finish its first new reactor. According to Moody’s Investor Service, “…nuclear generation has a fixed design where construction costs are rising rapidly, while other renewable technologies are still experiencing significant advancements in terms of energy conversion efficiency and cost reductions.” 137

Building 100 New Nuclear Reactors Would Divert Resources from Cheaper and More Effective Solutions

If both nuclear power and clean energy technologies such as renewable energy and energy efficiency improvements can reduce global warming pollution, why can’t we just pursue both paths – reducing emissions now through clean energy and in the future with nuclear? In a world of unlimited resources, such a path would be conceivable. But in the real world of public policy, governments must make choices about how to allocate limited resources. Moreover, to retain public support for efforts to reduce global warming pollution, government will need to demonstrate that it is acting in ways that minimize the costs of emission reductions and deliver the greatest benefit for the smallest expenditure. Recent estimates for the up-front cost of building a new nuclear reactor suggest that building 100 of them could require an up-front investment on the order of $600 billion. 138

However, the capital cost of a new nuclear plant is only part of the full story. Any up-front investment in nuclear power would lock in additional expenditures across decades. Once a plant is built, the price of the electricity it generates will reflect the ongoing need to pay off debt; the cost of operating and maintaining the plant; the cost of fueling the plant with uranium; the cost of decommissioning the plant and disposing of the waste; and the cost of transmitting and distributing the electricity to consumers. For 100 reactors, these costs would add up to additional trillions over a period of decades.

An investment in energy efficiency would deliver vastly superior results. Investing in energy efficiency actually pays us back with ongoing savings on electricity bills. Efficiency measures are almost always cheaper even than operating existing power plants. For example, analysts at the consulting firm McKinsey & Company estimate that investing $520 billion in energy efficiency measures would eliminate $1.2 trillion in waste from the U.S. economy, saving citizens and businesses nearly $700 billion (in net present value terms). 139 In other words, energy efficiency could provide the same level of impact as building 160 nuclear reactors in the next ten years – at net savings. 140

An investment in renewable sources of power can deliver carbon-free electricity for much less cost than nuclear power. Many types of renewable energy have the advantage of zero fuel costs, since wind and sunlight and the earth’s heat are free. Other types of clean energy, such as solar photovoltaic panels, have the advantage of being located near where the energy will be used, minimizing the cost of transmitting and distributing electricity. And these technologies require no special waste handling or decommissioning.

Compared to clean energy solutions, nuclear power is extremely expensive. The total extra cost to the U.S. economy of building 100 new nuclear reactors, above and beyond a least-cost clean energy approach, could fall in the range of $1.9 to $4.4 trillion over the entire lifetime of the reactors. 141

Cost Estimates for Nuclear Power Continue to Rise

In 2003, experts at the Massachusetts Institute of Technology and Harvard concluded that “today, nuclear power is not an economically competitive choice.” 142 The researchers predicted that without subsidies and financial support for the nuclear industry, “nuclear power faces stagnation and decline.” 143 The U.S. Congress responded by streamlining the permitting process at the Nuclear Regulatory Commission and authorizing billions in new subsidies through the 2005 Energy Policy Act. However, in 2009, the MIT researchers took another look at the nuclear industry and found that despite the new support, “increased deployment of nuclear power has been slow both in the United States and globally ….” 144

High costs are a major obstacle in the way of building new reactors. In the past decade, cost estimates for new nuclear power plants have only escalated.

In the early 2000s, nuclear industry executives estimated that construction costs for building a new nuclear reactor could approach $1,500 per kW of power generating capacity, plus finance costs. 145 They said the lower costs would make nuclear power competitive with coal and natural gas.

However, these early estimates have turned out to be overly optimistic. Recent estimates for the average cost of electricity from a new nuclear plant over its entire lifetime are four times higher than this initial projection that promoters of a “nuclear renaissance” put forward in the early part of the decade. 146

No nuclear companies have signed a contract guaranteeing a price for a new nuclear reactor. When Canada asked for guaranteed cost bids to build two new reactors, the results blew far past expectations. The only company willing to guarantee its work quoted a price of $26 billion to build two new reactors – or $10,800 per kW – more than seven times higher than cost estimates from early in the decade. 147 Areva offered its technology for $23 billion – or $7,400 per kW – but its bid was deemed non-compliant, likely because it would not guarantee the price. 148 Both of these quotes were more than double the threshold for competitiveness. 149

Nuclear Reactors Tend to Run Aground on Skyrocketing Construction Costs

High and escalating bids for new nuclear reactor projects should not be a surprise. Nuclear reactor construction projects in the U.S. have regularly run 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. 150 Laterbuilt reactors came in as much as 1,200 percent over budget. 151

Economists commonly expect that new products and technologies become cheaper over time, as companies gain experience and develop economies of scale. However, in the case of the last generation of nuclear power in the United States, the opposite proved to be true. The first nuclear reactors ever built were among the least expensive, while costs spiraled wildly out of control in the final decades of reactor construction. (See Figure 8.) For plants beginning operation in the late 1970s and onward, inflation-adjusted capital costs escalated from just under $2,000 per kW to more than $10,000 per kW (in 2004 dollars). 152

Seen through the lens of history, nuclear industry predictions that new designs and modular construction techniques will bring costs down appear overconfident. 154 Developing new nuclear power plants will likely remain prone to high cost “surprises” and increased financial risk for power companies and their customers. 155 Due to the large amount of money required to build an individual reactor, the investment ratings firm Moody’s calls nuclear construction a “bet the farm risk” for a typical utility. 156

Nuclear Power Is More Costly than Other Forms of Emission-Free Electricity

Power from a new nuclear reactor would be more costly than other forms of emission-free electricity. Recent estimates for the average cost of electricity from a new nuclear power plant over its entire lifetime range from a low of 8 cents to a high of 30 cents per kilowatt-hour (kWh), with the bulk of estimates falling between 12 and 20 cents per kWh. 157 For many of these estimates, add another 2 cents per kWh to transmit and distribute the electricity from the nuclear plant to the customer.

Vast amounts of clean energy are available – now – at far less cost. 158

—Energy from a new nuclear reactor would be two to six times more expensive than saving electricity through efficiency – including utility and consumer investment. Across the country, the average utility cost of saved energy is 2.5 cents per kWh, three to four times cheaper than building any kind of new power plant. 159 Including consumer contributions to efficiency measures, the average total resource cost of efficiency is around 4.6 cents per kWh. 160 Analyses of future energy efficiency potential typically find vast available resources with average utility lifetime costs of around 4 cents per kWh in the residential sector and 2 cents per kWh or less in the commercial and industrial sectors. 161 Moreover, as the scale and scope of energy efficiency programs increase, they tend to become even more cost effective. 162

—Combined heat and power and recycled energy technologies are also extremely costeffective sources of electricity. Recycled energy technologies can generate electricity for about 3 cents per kWh. 163 Combined cycle industrial heat and power installations can generally produce power for 4.5 to 5.5 cents per kWh, including credit for the value of useful heat that the generators also produce. 164 And smaller building-scale CHP technology can deliver electricity for less than 6 cents per kWh, again counting the value of the useful heat also produced by the generator. 165

—Energy efficiency, distributed solar power, and combined heat and power have the added advantage of saving or generating energy near where it will be used, avoiding transmission and distribution costs. In addition, saving or generating energy locally minimizes electricity losses that can occur while transporting electricity from a distant power plant.

Large potential supplies of clean energy from wind, solar, biomass and geothermal sources are also available – now – at costs well below estimates for new nuclear power. For example:

—America’s entire electricity needs could be met by the wind blowing across the Great Plains or the sunlight falling on a 100 mile square patch of the desert Southwest, or a tiny fraction of the natural heat just beneath the surface of the earth anywhere across the country. 166 Diverse, locally-based resources are available in every state. Even the southeastern United States has enough biomass, wind, and lowimpact hydroelectric resources to meet 25 percent of its electricity needs within the next two decades. 167

— The U.S. Department of Energy (DOE) estimates that wind energy resources across the U.S. as a whole could produce more than 1.5 million GWh per year for between 6 and 10 cents per kWh (2006 dollars). 168 (This price includes estimated transmission costs, assuming that the existing grid has 10 percent spare capacity that could be used for wind, and that appropriate planning will allow new lines to be constructed as needed.) This amount of wind would be the energy equivalent of 190 nuclear reactors. 169 DOE estimates that generating 20 percent of America’s electricity supply with wind by 2030 would cost the average household just 50 cents per month more compared to sticking with coal- and gas-fired power – and excluding the benefits of cleaner air and conserved water. 170

—The California Public Utilities Commission estimates that in the western United States: 171

—Nearly 200,000 GWh per year of renewable electricity could be delivered locally for 9 cents per kWh or less;

—An additional 200,000 GWh per year of renewable electricity could be locally delivered at costs of 10 cents per kWh or less; and

—Well over 500,000 GWh per year of additional renewable electricity could be delivered locally at a cost of 12 cents per kWh or less.

Electricity from these renewable resources – the energy equivalent of more than 110 nuclear reactors – would be available at 8 to 12 cents per kWh delivered, half to two-thirds of a mid-range estimate for the cost of power from a new nuclear power plant. 172 Developing U.S. renewable energy and energy efficiency resources could save Americans more than $200 billion on energy bills by 2020. 173

Per Dollar Spent, Clean Energy Is More Effective at Preventing Pollution than New Nuclear Power

In at least the next six years, new nuclear power cannot be obtained in the United States at any price. However, many other energy technologies are available now that can deliver cost-effective reductions in pollution. Recent estimates for the cost of a new nuclear power plant place it well above many alternatives, including energy efficiency, combined heat and power, wind power (on land and off shore), biomass, landfill gas, geothermal, some types of solar thermal power and natural gas combined cycle power. 174

Research done for the California Energy Commission (CEC) in 2009 provides a relatively recent, apples-to-apples comparison of the estimated costs of different generation technologies with an in-service date of 2018, a decent guess as to when the first nuclear reactors might become available. 175 The estimates are partially specific to western states, and include the effects of some tax and incentive policies now authorized through that year (but not the renewable energy production tax credit, which is currently set to expire by 2013). These factors aside, the research gives a general idea of how generation technologies stack up. Many additional studies, using different starting assumptions, support the conclusion that energy efficiency and many forms of renewable power are expected to be substantially more cost-effective than nuclear power. 176

The CEC figures also exclude solutions like energy efficiency, biomass co-firing and combined heat and power, so this report draws on other sources to include them. Finally, this report does not consider possible intermediate solutions such as replacing coal-fired power with greater utilization of existing natural gas-fired power plants, which are also likely to be more cost-effective ways to prevent carbon emissions than building new nuclear plants.

In 2018, the CEC projects that new nuclear power will be more costly than most other forms of low emission electricity, whether financed by a public utility, an investor-owned utility, or a merchant generator. 177 Under investor-owned utility financing, per dollar spent (over the lifetime of the technology), energy efficiency would be five times more effective at preventing global warming pollution, and combined heat and power (in which a power plant generates both electricity and heat for a building or industrial application) would be greater than three times more effective. (See Figure 9.) Even without the benefit of the production tax credit in 2018, biomass, geothermal and land-based wind energy will be more than twice as effective, and offshore wind will be on the order of 40 percent more effective. Under merchant financing terms, nuclear fares even more poorly, with CEC expecting both solar thermal and solar photovoltaic power to be more cost-effective ways to reduce pollution.

By 2018, solar photovoltaic power should be comparable to a new nuclear reactor in terms of its per-dollar ability to prevent global warming pollution. However, solar power is falling in price far faster than any other generation technology. Solar prices have fallen by more than 80 percent since 1980. 179 And prices continue to decline as public policies encourage growth in capacity for solar panel manufacturing, distribution and installation. 180 Recent cost improvement is apparent in utility decisions to build nearly 1,000 MW of large-scale solar photovoltaic power plants in Florida and California – 10 times bigger than any now in service across the world. 181

In fact, recent analysis by the investment firm Lazard implies that thin-film solar photovoltaic and solar thermal power technologies, with existing incentives, are already competitive with and even ahead of nuclear power. 182 Lazard also highlights biomass co-firing – in which an existing coal-fired power plant replaces up to 15 percent of its typical fuel with plant matter – and landfill gas as additional cost-effective options. 183

The fact that clean energy is more cost-effective than new nuclear reactors is reflected in the conclusion of a recent report by the European Renewable Energy Council, the German Aerospace Center and Greenpeace, which shows that currently available clean energy technology could be deployed in the United States to deliver massive reductions in global warming pollution – at half the cost and with twice the job creation as an equivalent amount of nuclear and coal-fired power. Similarly, the non-profit Nuclear Policy Research Institute and the Institute for Energy and Environmental Research have published a report demonstrating how the United States can create an economy with zero emissions of global warming carbon dioxide pollution within 30 to 50 years at a reasonable cost, without nuclear power. 184

What Could an Equivalent Capital Investment in Clean Energy Achieve?

Investing $600 billion could potentially get us 100 new nuclear reactors by 2030. Alternatively, if we invested that money in clean energy solutions, we could get the double the impact, without the drag on the economy that the high cost of nuclear power would impose.

At an optimistic reactor cost forecast used by the Energy Information Administration of around $2,500 per kW of capacity (see page 22), building 100 new reactors would cost $250 billion up-front. Investing that same amount of capital in energy efficiency could reduce America’s electricity consumption by about 12 percent below the reference case by 2030. 185 This level of investment in energy efficiency would deliver emission reductions equal to building 100 new nuclear reactors by 2030, but unlike nuclear, pollution prevented through efficiency would come at net savings, since energy efficiency is so much more cost-effective than building new reactors.

At mid-range costs of around $6,500 per kW, near those forecast by Moody’s and comparable to recently proposed reactors, building 100 nuclear reactors would cost $650 billion. 186 Directing $590 billion of this capital investment to efficiency measures could capture a large fraction of America’s identified potential for electric energy efficiency, reducing electricity consumption by 25 percent below business as usual by 2030. The remaining money could purchase enough wind turbines and other renewable energy equipment to generate an additional 130 billion kWh by 2030. 187 Altogether, this package of clean energy would yield as much energy as more than 170 nuclear reactors in 2030. 188 This package of clean energy would reduce twice as much pollution as nuclear through 2030, with net savings on electricity costs – which nuclear power cannot offer.

High electricity prices collapse growth and competitiveness.

Bourne 11— Executive Director for the American Energy Freedom Center, Alexandra, American Energy Freedom: The Basis for Economic Recovery, Heritage Foundation, 5-31

Abstract: Electricity is the lifeblood of the U.S. economy—it is essential for all transportation, and for manufacturing all food and consumer products on which Americans rely every day. Many small businesses and families are still struggling to make ends meet during this fragile economic rebound, and the last thing they need is the rapidly increasing electricity, fuel, and food costs. Affordable energy is the key to lasting economic recovery, and a market-based energy policy is the best way to achieve it. An effective energy policy embraces and encourages the use of abundant and reliable domestic energy resources. Any energy policy that tightens supplies and raises prices will hurt everyone— but especially the lower and middle income—and needlessly prolong the economic misery. It is vitally important to thwart policy initiatives that raise energy prices, make American manufacturing uncompetitive, and send American jobs abroad.

### Off

Fiscal Cliff averted for two months – Obama needs polcap to avert total meltdown

Mahn 1-3 (Kevin, Forbes, http://www.forbes.com/sites/advisor/2013/01/03/fiscal-cliff-deal-4-tax-provisions-handled-1-hiked-still-work-to-be-done/)

A last minute fiscal cliff deal/compromise was reached in Washington to avert the initial stages of a potential economic meltdown that was received warmly by the markets given the extent of the relief rally that we have experienced thus far on the first trading day of the New Year.¶ However, I don’t believe that we are anywhere close to signaling “all clear” on the Fiscal Cliff front and that the deal in question—while it averted some of the feared, short-term draconian tax increases associated with going over the cliff—did nothing to address the longer term, more encompassing budget issues as the compromise delayed any decisions on spending cuts for another two months.¶ The compromise also did not deal with the impending Debt Ceiling debate, which promises to have both political parties digging in on their ideological heels.¶ Removing some uncertainty from the markets, what has been addressed in the deal/compromise were changes to the revenue side of the fiscal budget equation primarily dealing with tax rates and income levels associated with these tax rates.¶ As I understand it at this point in time, based primarily upon a recent The Wall Street Journalarticle entitled, “Summary of Bill’s Tax Provisions,” here are some of the major provisions of the deal that were agreed to by the White House, Senate and House of Representatives—and one noteworthy tax that was not addressed in the deal.¶ 1. The personal income tax rate for families with incomes above $450,000 (individuals with incomes above $400,000 and heads-of-households with incomes above $425,000) will increase. Any excess income above these levels will now be taxed at 39.6%. This represents the largest income tax rate increase in nearly two decades. The tax rates for families, individuals and heads-of households with income below these thresholds will not change and will remain at their existing Bush-era tax bracket levels.¶ 2. The tax rate on capital gains and dividendswill rise to 20% from 15% for incomes above the levels described in (1) above. These tax rates will remain at 15% for all other applicable taxpayers below these thresholds. Avoiding the tax treatment of dividend income at ordinary income rates, as opposed to the agreed upon tax rates of 15% or 20%, is viewed as a major positive for investors–especially those with dividend oriented investment strategies in their portfolios.¶ 3. The estate tax will be increased from a top tax rate of 35% to 40% with a $5 million exemption level. This threshold will be indexed to inflation going forward.¶ 4. The Alternative Minimum Tax (AMT) was patched to avoid raising taxes, through the AMT, on more middle-class Americans by raising the income exemption from $33,750 (individuals) and $45,000 (married couples filing jointly), as it would have reverted to for the tax year 2012, to $50,600 (individuals) and $78,750 (married couples filing jointly) respectively. The exemption amounts will be indexed going forward as well.¶ 5. The deal did not address payroll taxes. As a result, the rate of payroll taxes for workers used to fund Social Security will increase from 4.2% (which was in place for the previous two tax years) to 6.2% as of January 1, 2013. According to The Tax Policy Center, approximately 77% of American households will face higher federal taxes in 2013—not just income tax increases on wealthier American households but payroll tax increases on middle and low income American households as well.¶ While the details of the “first Fiscal Cliff deal,” addressing revenue (i.e. taxes), show that the compromises reached helped to lessen the initial taxable impact that would have been experienced by many taxpayers and investors if no deal had been reached at all, I remain concerned with the lack of any type of deal on spending cuts at this time.¶ A “second Fiscal Cliff deal,” addressing spending cuts, would need to be reached within the next two months according to the outtakes of the first Fiscal Cliff deal. If an agreement between the two political parties on spending cuts cannot be reached in that timeframe, the Debt Ceiling debate would then return to the front burner as more debt would thus be needed (potentially involving another increase to the Debt Ceiling) to fund the existing Federal balance sheet imbalance.¶ Judging from past experience, I would anticipate that any agreement on a second Fiscal Cliff deal will probably come down to the wire, if not get postponed again, and that market volatility will likely continue to increase as we get closer to the new deadline.

Current deal isn’t enough – lack of a full deal will cause a full collapse

Delamaide 1-3 (Darrell, Marketwatch, “Tactical deal on “cliff” risks permanent damage,” http://www.marketwatch.com/story/tactical-deal-on-cliff-risks-permanent-damage-2013-01-03?link=MW\_latest\_news)

The bill passed with so much drama converted the temporary George W. Bush-era tax cuts into the permanent Obama tax cuts. As hard as it may be to not extend tax cuts that are due to expire, it’s much harder politically to actually raise tax rates.¶ The tax rates, originally adopted in response to a surging government surplus and then extended to avoid fiscal contraction during a recession, have now been set at a permanently low level, which could hinder the country from achieving its future economic and social goals.¶ This was the thrust of the argument made by one of the 16 Democratic congressmen who voted against the bill.¶ “We have concretized revenue at an extraordinarily low rate,” Rep. Jim Moran said Wednesday on MSNBC.¶ Moran, who represents some of the Washington suburbs in northern Virginia, said the tax rates enshrined in the legislation now signed into law by President Barack Obama meant “we will never bring in more than 15% of GDP.” But, he added, the U.S. has never enjoyed a robust economy without government spending of at least 20% of gross domestic product.¶ Moran, beginning his 12th term in Congress this week, noted the deal’s immediate consequences of leaving several ugly fiscal battles to fight in the coming weeks — raising the debt ceiling, disarming the “sequester” of automatic spending cuts, and passing a budget that enables the government to continue operating.¶ But the real issue is the long-term problem of starving the beast, with Obama at his moment of maximum leverage getting only $620 billion in added tax revenue over 10 years — instead of the $1.6 trillion he sought in earlier proposals.¶ “I wanted [Obama] to have a legacy he could be proud of,” Moran said, including investments in education and training to keep the country competitive economically. “I doubt that can be done with the limited resources we voted [Tuesday] night.”

Plan costs capital—

McDonald 11—Lawrence McDonald, special advisor to the Financial Crisis Inquiry Commission (FCIC), created by Congress in 2009 to investigate the causes, domestic and global, of the economic and financial crisis in the United States, a leading risk managers and bond traders today, Larry is a frequent guest contributor on Bloomberg, CNBC and Fox Business Japan’s Nuclear Crisis and What That Means for Energy Policy, 3-18, http://www.lawrencegmcdonald.com/japans-nuclear-crisis-and-what-that-means-for-energy-policy/

Despite his assurances that the administration continues to support loan guarantees for the nuclear industry, Secretary Chu faced a number of questions from Democrats skeptical about the wisdom of the program.

In particular, Rep. Ed Markey asked Secretary Chu if Wall Street would continue to believe that nuclear energy was a smart investment opportunity given the crisis in Japan. Chu, of course, declined to comment on how investors might react to the crisis.

The nuclear energy loan guarantee program has long been criticized not only by those opposed to an expansion of nuclear energy but also by budget watchdogs who believe the program is a wasteful government subsidy.

Given the current state of the economy, that one-two punch could be enough to slow the program down significantly.

Clean Energy Standard

President Obama took some by surprise when he called in his State of the Union address for the creation of a Clean Energy Standard (CES) that includes nuclear energy.

Just as skeptical Democrats, like Energy and Natural Resources Committee Chairman Jeff Bingaman, were starting to come around, the crisis in Japan may slow Congressional negotiations on the issue, particularly in the House.

Fiscal Cliff negotiations in particular require political capital – Obama can’t spend it elsewhere

Raum 12-11 (Tom, Associated Press, “The Reset: Obama Spending ‘Political Capital’,” http://www.utsandiego.com/news/2012/dec/10/the-reset-obama-spending-political-capital/)

President Barack Obama is trying to spend what former President George W. Bush called “political capital.”¶ That’s the good will and clout you get from a re-election victory. Obama’s predecessor boasted after his 2004 win that he’d amassed political capital and planned to “spend it” in his second term.¶ Obama is now trying to do the same ting, standing firm with Republicans in negotiations on averting the year-end fiscal cliff and refusing to budge on his insistence that top tax rates — not just overall tax revenues— go up in any bipartisan fiscal deal.¶ Clearly, his re-election win has given him more leverage.¶ He campaigned on letting Bush-era tax cuts expire for households earning over $250,000 a year. And polls show that if Congress can’t agree in the next three weeks and the economy goes over the “fiscal cliff” triggering large automatic spending cuts and tax increases, more voters will blame Republicans than Democrats.¶ Obama met House Speaker John Boehner Sunday for a rare one-on-one talk about the crisis. Otherwise, he’s been busy presenting his case elsewhere — including Monday’s campaign-like visit to Michigan auto workers.¶ Republicans gripe the president should be in Washington negotiating — not still out campaigning.¶ Obama says he’s mindful of “presidential overreach in second terms” and will proceed cautiously. Still, “I didn’t get reelected just to bask in reelection.”¶ Of course Bush found he had far less political capital than he’d imagined.¶ He campaigned across the country in early 2005 for a plan to partially privatize Social Security. After months on the road, he realized he couldn’t even sell his plan to many members of his own party on Capitol Hill.¶ Right now, Democrats are giving Obama running room. “He gets his way — up to a point,” said Sen. Sherrod Brown, D-Ohio.

Nuclear war

Burrows and Harris 9- Mathew J. Burrows is a counselor in the National Intelligence Council (NIC), the principal drafter of Global Trends 2025: A Transformed World, Jennifer Harris is a member of the NIC’s Long Range Analysis Unit, “Revisiting the Future: Geopolitical Effects of the Financial Crisis”, The Washington Quarterly, April, http://www.ciaonet.org/journals/twq/v32i2/f\_0016178\_13952.pdf

Increased Potential for Global Conflict Of course, the report encompasses more than economics and indeed believes the future is likely to be the result of a number of intersecting and interlocking forces. With so many possible permutations of outcomes, each with ample opportunity for unintended consequences, there is a growing sense of insecurity. Even so, history may be more instructive than ever. While we continue to believe that the Great Depression is not likely to be repeated, the lessons to bedrawn from that period include the harmful effects on fledgling democracies andmultiethnic societies (think Central Europe in 1920s and 1930s) and onthe sustainability ofmultilateral institutions (think League of Nationsin thesame period). There is no reason to think that this would not be true in the twenty-first as much as in the twentieth century. For that reason, the ways in which the potential for greater conflict could grow would seem to be even more apt in a constantly volatile economic environment as they would be if change would be steadier. In surveying those risks, the report stressed the likelihood that terrorism and nonproliferation will remain priorities even as resource issues move up on the international agenda. Terrorism’s appeal will decline if economic growth continues in the Middle East and youth unemployment is reduced. For those terrorist groups that remain active in 2025, however, the diffusion oftechnologies and scientific knowledge will place some of the world’s mostdangerous capabilities within their reach. Terrorist groups in 2025 will likely be a combination of descendants of long established groups inheriting organizational structures, command and control processes, and training procedures necessary to conduct sophisticated attack and newly emergentcollections of the angry and disenfranchised that become self-radicalized,particularly in the absence of economic outlets that would become narrowerin an economic downturn. The most dangerous casualty of any economically-induced drawdown of U.S. military presence would almost certainly be the Middle East. Although Iran’s acquisition of nuclear weapons is not inevitable, worries about a nuclear-armed Iran could lead states in the region to develop new security arrangements with external powers, acquire additional weapons, and consider pursuing their own nuclear ambitions. It is not clear that the type of stable deterrent relationshipthat existed between the great powers for most of the Cold War would emergenaturally in the Middle East with a nuclear Iran. Episodes of low intensity conflict and terrorism taking place under a nuclear umbrella could lead to an unintended escalation and broader conflict if clear red lines between those states involved are not well established. The close proximity of potential nuclear rivals combined with underdeveloped surveillance capabilities and mobile dual-capable Iranian missile systems also will produce inherent difficulties in achieving reliable indications and warning of an impending nuclear attack. Thelack of strategic depth in neighboring states like Israel, short warning and missileflight times, and uncertainty of Iranian intentions may place more focus onpreemption rather than defense, potentially leading to escalating crises. Types of conflict that the world continuesto experience, such as over resources, could reemerge, particularly if protectionism grows and there is a resort to neo-mercantilist practices. Perceptions of renewed energy scarcity will drive countries to take actions to assure their future access to energy supplies. In the worst case, this could result in interstate conflicts if governmentleaders deem assured access to energy resources,for example, to be essential for maintaining domestic stability and the survival oftheir regime. Even actions short of war, however, will have important geopoliticalimplications. Maritime security concerns are providing a rationale for navalbuildups and modernization efforts, such as China’s and India’s development of blue water naval capabilities. If the fiscal stimulus focus for these countries indeed turns inward, one of the most obvious funding targets may be military. Buildup ofregional naval capabilities could lead to increased tensions, rivalries, andcounterbalancing moves, but it also will create opportunities for multinational cooperation in protecting critical sea lanes. With water also becoming scarcer inAsia and the Middle East, cooperation to manage changing water resources is likely to be increasingly difficult both within and between states in amoredog-eat-dog world.What Kind of World will 2025 Be? Perhaps more than lessons, history loves patterns. Despite widespread changes in the world today, there is little to suggest that the future will not resemble the past in several respects. The report asserts that, under most scenarios, the trendtoward greater diffusion of authority and power that has been ongoing for acouple of decades is likely to accelerate because of the emergence of new globalplayers, the worsening institutional deficit, potential growth in regional blocs,and enhanced strength of non-state actors and networks. The multiplicity of actors on the international scene could either strengthen the international system, by filling gaps left by aging post-World War II institutions, or could further fragment it and incapacitate international cooperation. The diversity in both type and kind of actor raises the likelihood of fragmentation occurring over the next two decades, particularly given the wide array of transnational challenges facing the international community. Because of their growing geopolitical and economic clout, the rising powers will enjoy a high degree of freedom to customize their political and economic policies rather than fully adopting Western norms. They are also likely to cherish their policy freedom to maneuver, allowing others to carry the primary burden for dealing with terrorism, climate change, proliferation, energy security, and other system maintenance issues. Existing multilateral institutions, designed for a different geopolitical order, appear too rigid and cumbersome to undertake new missions, accommodate changing memberships, and augment their resources. Nongovernmental organizations and philanthropic foundations, concentrating on specific issues, increasingly will populate the landscape but are unlikely to affect change in the absence of concerted efforts by multilateral institutions or governments. Efforts at greater inclusiveness, to reflect the emergence of the newer powers, may make it harder for international organizations to tackle transnational challenges. Respect for the dissenting views of member nations will continue to shape the agenda of organizations and limit the kinds of solutions that can be attempted. An ongoing financial crisis and prolonged recession would tilt the scales even further in the direction of a fragmented and dysfunctional international system with a heightened risk of conflict. The report concluded that the rising BRIC powers (Brazil, Russia, India, and China) seem averse to challenging the international system, as Germany and Japan did in the nineteenth and twentiethcenturies, but this of course could change if their widespread hopes for greater prosperity become frustrated and the current benefits they derive from a globalizing world turn negative.

### Off

NRC has sufficient resources now to ensure safety – but overstretch causes a repeat of Fukushima

Kaufman 11, Daniel - Brookings Senior Fellow “Preventing Nuclear Meltdown,” 4-1-2011, http://www.brookings.edu/research/opinions/2011/04/01-nuclear-meltdown-kaufmann

Many wonder whether Japan’s nuclear disaster could have been averted. The embattled operator of the Fukushima nuclear plant, Tokyo Electric Power Company (TEPCO), has borne the brunt of criticism; its numerous failures over the years are certainly well known. However, Japan’s Nuclear and Industrial Safety Agency (NISA), responsible for regulating the nuclear industry, also ought to be subject to particular scrutiny for allowing TEPCO to operate despite its past safety and disclosure violations. We thus ask what types of regulatory failure may have contributed to Japan’s nuclear crisis and assess whether the U.S. Nuclear Regulatory Commission (NRC) is at risk of committing similar errors. Regulatory failure occurs when the regulatory system is deeply flawed – such as when it over- or under-regulates or when the regulatory design is based on “old science”. Regulatory failure also happens when agencies inadequately fulfill their oversight, supervisory and enforcement functions. Failures by regulatory agencies can go undetected for some time until they are exposed by a crisis, such as the BP oil spill in 2010 and the financial crisis that originated in Wall Street in 2008. When assessing regulatory failure, it is important to distinguish between at least three different types of failure: lack of resources, mismanagement and poor technical expertise, and capture of the regulator by the regulated. Episodes of regulatory failure result from different combinations of subpar performance in some or all of these components. Which dimensions were associated with the failures at Japan’s regulatory agency? Does the U.S. nuclear energy regulator face similar challenges? Let us review each of the three types of failures in the context of Japan’s NISA and the U.S.’s NRC. Lack of Resources: When regulators lack the resources to hire staff, provide adequate training and expend the money necessary to monitor industries, regulatory concerns may go undetected and failure may result. The evidence does not suggest that Japan’s NISA or the U.S.’s NRC lacked sufficient resources to effectively implement regulations.

Flood of new reactors overstretches NRC funds and manpower

Weaver 7 Lynn, President Emirtus of Florida Institute of Technology, “Fund NRC Nuclear Power Licensing” <http://www.theledger.com/article/20070207/COLUMNISTS03/702070394?p=3&tc=pg>

The Nuclear Regulatory Commission has alerted several utilities that license reviews would be delayed at least a year.¶ With all the concern in Congress over global warming, one might think that an increase in the number of nuclear power plants in the United States is inevitable, both to satisfy energy demands and to counter greenhouse-gas emissions. But that, of course, would be wrong.¶ There are about 100 nuclear plants in the United States and they account for about 75 percent of our country's emission-free electricity.¶ Utilities are preparing to build another 33 plants, including two in Florida.¶ These would be the first reactors to be built in this country in many years, and federal and state energy officials agree that it won't be possible to reduce U.S. greenhouse emissions without them. But it now appears that electric utilities might not be able to obtain licenses anytime soon to build new nuclear plants.¶ The reason for the licensing delay is simple-and-straightforward: a critical shortage of manpower at the Nuclear Regulatory Commission - which is expected to become acute within a year. The NRC knows that it needs to expand its workforce, because it's facing a flood of regulatory reviews for new nuclear plants and existing plants that are seeking a renewal of their operating licenses. But it doesn't have the money.¶ Congress is bogged down in a dispute over federal spending. It has passed just two of the 11 spending bills for the fiscal year that began last October, those covering defense and homeland security. The rest of the government is operating under a continuing resolution that holds spending to last year's levels.¶ As a result, the NRC's budget is lower by $95 million (12 percent), compared with the level approved by both the House and Senate appropriations committees, but not the full House.¶ This has meant that the NRC doesn't have enough funds to handle the resurgence in nuclear power. In fact, it recently alerted several utilities that reviews of their applications for license renewal would be delayed at least a year, because it does not have the capability to deal with more than a few applications at a time.¶ So far, the NRC has done a commendable job of coping with the situation, even though its budget in recent years has been slighted. Since 2000, the licenses of 48 nuclear plants - including all of the units at the Turkey Point plant and the St. Lucie plant in Florida - have been extended for another 20 years, but the owners of many other plants now face some uncertainty in getting the license of their plants renewed. And the start of construction of new nuclear plants could be set back.

Meltdowns cause extinction

Wasserman 4 Harvery - Sen. Advisor Nuclear Info and Res. Service, MA History U. Chicago, 2004, “Nuclear Power and Terrorism,” Spring, v. 17, no. 1, www.earthisland.org/eijournal/new\_articles.cfm?articleID=457&journalID=63

Infants and small children would quickly die en masse. Pregnant women would spontaneously abort or give birth to horribly deformed offspring. Ghastly sores, rashes, ulcerations and burns would afflict the skin of millions. Heart attacks, stroke and multiple organ failure would kill thousands on the spot. Emphysema, hair loss, nausea, inability to eat or drink or swallow, diarrhea and incontinence, sterility and impotence, asthma and blindness would afflict hundreds of thousands, if not millions. Then comes the wave of cancers, leukemias, lymphomas, tumors and hellish diseases for which new names will have to be invented. Evacuation would be impossible, but thousands would die trying. Attempts to quench the fires would be futile. More than 800,000 Soviet draftees forced through Chernobyl's seething remains in a futile attempt to clean it up are still dying from their exposure. At Indian Point, the molten cores would burn uncontrolled for days, weeks and years. Who would volunteer for such an American task force? The immediate damage from an Indian Point attack (or a domestic accident) would render all five boroughs of New York City an apocalyptic wasteland. As at Three Mile Island, where thousands of farm and wild animals died in heaps, natural ecosystems would be permanently and irrevocably destroyed. Spiritually, psychologically, financially and ecologically, our nation would never recover. This is what we missed by a mere 40 miles on September 11. Now that we are at war, this is what could be happening as you read this. There are 103 of these potential Bombs of the Apocalypse operating in the US. They generate a mere 8 percent of our total energy. Since its deregulation crisis, California cut its electric consumption by some 15 percent. Within a year, the US could cheaply replace virtually all the reactors with increased efficiency. Yet, as the terror escalates, Congress is fast-tracking the extension of the Price-Anderson Act, a form of legal immunity that protects reactor operators from liability in case of a meltdown or terrorist attack. Do we take this war seriously? Are we committed to the survival of our nation? If so, the ticking reactor bombs that could obliterate the very core of our life and of all future generations must be shut down.

Turns the case---NRC credibility and safety are essential to nuclear

Fertel 12 Marvin - Nuclear Energy Institute’s president and chief executive officer, “NRC Leadership Must Reinstate Environment That Promotes Collegial Engagement,” 6/26/2012

<http://www.nei.org/newsandevents/newsreleases/nrc-leadership-must-reinstate-environment-that-promotes-collegial-engagement>

“Safe performance of nuclear energy facilities and the Nuclear Regulatory Commission’s credibility are the two most important factors for policymaker and public confidence in nuclear energy. As such, the industry is concerned with anything that threatens the credibility of either. It is critical that the NRC leadership, including Allison Macfarlane if confirmed by the Senate, take the steps necessary to ensure that the agency is an efficient, effective regulator.

“The industry is always concerned about the possibility of a chilled working environment at our facilities or at the NRC, including the possibility of staff intimidation, at a time when the senior management and staff are working on crucial licensing activities and post-Fukushima safety recommendations. The industry takes safety culture issues seriously, and we expect the same priority treatment of these issues by our regulator.

“Safety is maximized when NRC and industry resources are focused on those matters that are most important to safety. It is important that the NRC commission and staff have a professional, collegial environment that allows the important work of the agency to continue without interruption or distraction.”

### Off

Text: The United States federal government should fully fund and support international cooperation on the research and deployment of atmospheric aerosol injection and carbon air capture and storage with the goal of stabilizing global climate change at pre-industrial levels by 2050. Support for international cooperation should include compensation for parties harmed by geoengineering.

Research funding causes a cooperative international expansion of geoengineering.

Brand 9—Lifetime environmentalist, President of the Long Now Foundation and author of the Whole Earth Catalog which won the National Book award in 1972, Stewart, Whole Earth Discipline, pg 294-5

Because the cost of some geoengineering schemes is so low, Victor predicts, "A lone Greenfinger, self-appointed protector of the planet and working with a small fraction of the Gates bank account, could force a lot of geoengineering on his own." The way to head off unilateral geoengi­neering and premature treaties, Victor suggests, is with a growing body of norms rather than rules:

Meaningful norms are not crafted from thin air. They can have effect if they make sense to pivotal players and when they become socialized through practice. . . . Useful norms could arise through an intensive process of research and assessment that is probably best organized by the academies of sciences in the few countries with the potential to geoengineer. . . .

Most likely . . . is that the impacts of global climate change will have reached such a nasty state by the time societies deploy large-scale geoengineering that some side effects will be tolerated. The . . . systems they deploy will not be a silver bullet but rather many interventions deployed in tandem—one to focus on the central disease and others to fix the ancillary harms.

To my mind, a useful role for Greenfinger entrepreneurs might be to jump-start serious geoengineering research while national academies of science are spending years making up their minds to act. Then the privately funded researchers could bring real data to the "transnational assessment process," where the norms and best practices emerge. This is a planetary hack we're talking about. It has to be totally transparent and highly collaborative. Everyone's first preference is to not deploy it at all, but if it has to be used, it must be done effectively and minimally, and if possible, for a limited period. Like abortion, geoengineering should be "safe, legal, and rare."

That still leaves the question of who runs things—"whose hands will be allowed on the thermostat," as David Victor puts it. The task can be divided between the operators and an oversight body. In one previous piece of planet craft—the total eradication of smallpox in the 1970s—the World Health Organization provided oversight and funding, and the Smallpox Eradication Unit, led by Donald Henderson, did the work.

In Victor's formulation, norms and leadership for geoengineering will emerge from an intensifying sequence of conferences, research projects, data sharing, and brainstorming. The most effective early players will determine the play, and funding will determine the pace. Geoengineering is government-scale infrastructure; it will need government-scale money. Once one nation commits, I suspect, other nations will join in, lest they be left out. If China says, "We're going to geoengineer," the United States, Russia, the European Union, Japan, Brazil, and India are not going to say, "Fine, let us know how it works out." They'll start their own programs. With luck, an ad hoc standards-setting body similar to the Internet Engi­neering Task Force ("rough consensus and running code") will emerge. That kind of governance was required in order to have one universal Inter­net. The planet's one universal climate requires something similar.

Geo-engineering solves warming.

Lenton and Vaughan 9—T . M. Lenton, School of Environmental Sciences, University of East Anglia, and N. E. Vaughan, Tyndall Centre for Climate Change Research, UK, The radiative forcing potential of different climate geoengineering options, Atmos. Chem. Phys., 9, 5539–5561, 2009

Abstract. Climate geoengineering proposals seek to rectify the Earth’s current and potential future radiative imbalance, either by reducing the absorption of incoming solar (shortwave) radiation, or by removing CO2 from the atmosphere and transferring it to long-lived reservoirs, thus increasing outgoing longwave radiation. A fundamental criterion for evaluating geoengineering options is their climate cooling effectiveness, which we quantify here in terms of radiative forcing potential. We use a simple analytical approach, based on energy balance considerations and pulse response functions for the decay of CO2 perturbations. This aids transparency compared to calculations with complex numerical models, but is not intended to be deﬁnitive. It allows us to compare the relative effectiveness of a range of proposals. We consider geoengineering options as additional to large reductions in CO2 emissions. By 2050, some land carbon cycle geoengineering options could be of comparable magnitude to mitigation “wedges”, but only stratospheric aerosol injections, albedo enhancement of marine stratocumulus clouds, or sunshades in space have the potential to cool the climate back toward its pre-industrial state. Strong mitigation, combined with global-scale air capture and storage, afforestation, and bio-char production, i.e. enhanced CO2 sinks, might be able to bring CO2 back to its pre-industrial level by 2100, thus removing the need for other geoengineering. Alternatively, strong mitigation stabilising CO2 at 500 ppm, combined with geoengineered increases in the albedo of marine stratiform clouds, grasslands, croplands and human settlements might achieve a patchy cancellation of radiative forcing. Ocean fertilisation options are only worthwhile if sustained on a millennial timescale and phosphorus addition may have greater long-term potential than iron or nitrogen fertilisation. Enhancing ocean upwelling or downwelling have trivial effects on any meaningful timescale. Our approach provides a common framework for the evaluation of climate geoengineering proposals, and our results should help inform the prioritisation of further research into them.

### Warming

No solvency – IFRs only a solve a fraction of energy emissions and NO other sources

Green 9 - PhD in science and technology studies for his analysis of the Lucas Heights research reactor debates and national anti-nuclear campaigner with Friends of the Earth Australia and Australian coordinator of the Beyond Nuclear Initiative [Jim Green, “Nuclear Weapons and 'Generation 4' Reactors, Friends of Earth Australia, July 2009, http://www.foe.org.au/anti-nuclear/issues/nfc/power-weapons/g4nw]

Integral fast reactors' and other 'fourth generation' nuclear power concepts have been gaining attention, in part because of comments by US climate scientist James Hansen. While not a card-carrying convert, Hansen argues for more research: "We need hard-headed evaluation of how to get rid of long-lived nuclear waste and minimize dangers of proliferation and nuclear accidents. Fourth generation nuclear power seems to have the potential to solve the waste problem and minimize the others." Others are less circumspect, with one advocate of integral fast reactors promoting them as the "holy grail" in the fight against global warming. There are two main problems with these arguments. Firstly, nuclear power could at most make a modest contribution to climate change abatement, mainly because it is used almost exclusively for electricity generation which accounts for about one-quarter of global greenhouse emissions. Doubling global nuclear power output (at the expense of coal) would reduce greenhouse emissions by about 5%. Building six nuclear power reactors in Australia (at the expense of coal) would reduce Australia's emissions by just 4%.

IFRs too costly and too long term to solve warming – also trades off with short-term renewable tech that solves better

Cochran 9 - Senior Scientist, Nuclear Program, Natural Resources Defense Council [Thomas Cochran, “Senate Energy and Natural Resources Committee Hearing; To receive testimony on nuclear energy development; Testimony by Thomas Cochran, Senior Scientist, Nuclear Program, Natural Resources Defense Council” March 18, 2009, Congressional Documents and Publications]

B. Spent Fuel Reprocessing. The federal government should not encourage or support commercial spent fuel reprocessing. Putting aside for the moment the serious proliferation and security concerns involved in any future global shift toward reprocessing, it's clear that combating climate change is an urgent task that requires near term investments yielding huge decarbonization dividends on a 5 to 20 year timescale. For thermal reactors, the closed fuel cycle (spent fuel reprocessing and recycling plutonium) is unlikely ever to be less costly than the once-through fuel cycle, even assuming significant carbon controls. But setting aside such near-term cost barriers, commercial viability for a closed fuel cycle employing fast reactors is an even longer-term proposition. So even fervent advocates of nuclear power need to put the reprocessing agenda aside for a few decades, and focus on swiftly deploying and improving the low-carbon energy solutions. Think about it. In pursuit of closing the fuel cycle, the U.S. government could easily spend on the order of $ 150 billion over 15 years just to get to the starting line of large-scale commercialization. But all that spending will not yield one additional megawatt of low-carbon electricity beyond what could be obtained by sticking with the current once-through cycle, much less by investing that $150 billion in renewable and efficient energy technologies. Spent-fuel reprocessing, plutonium recycle, and fast reactor waste transmutation are currently uneconomical, higher-risk, 100-year answers to an urgent climate question that now requires low-risk 5 to 20 year solutions. For now, Congress and the new Administration should terminate funding for the Global Nuclear Energy Partnership (GNEP) and its associated efforts to close the nuclear fuel cycle and introduce fast burner reactors in the United States.At any point along the way, Mr. Chairman, we can revisit this issue to assess whether there may be truly disruptive innovations in nuclear technology that would alter this negative assessment, and induce us to view closing the fuel cycle as a more costeffective pathway to decarbonization than the host of cheaper alternatives we have available to us today.

Warming will be small.

Nature 12—Warming, but not as much, Nature 481, 413 (26 January 2012), http://www.nature.com/nature/journal/v481/n7382/full/481413e.html?WT.ec\_id=NATURE-20120126

The climate system may be less sensitive to greenhouse-gas warming than many models have predicted.

Nathan Gillett and his co-workers at Environment Canada in Victoria, British Columbia, analysed how well the latest Canadian Earth System Model tracked temperature changes attributable to volcanoes, man-made aerosols and rising greenhouse-gas emissions. They adjusted the model using temperature records from 1851 to 2010 — 60 years of data more than most previous analyses. The model predicted a short-term increase of 1.3–1.8 °C for a doubling of atmospheric carbon dioxide levels, which is low in the range of estimates from previous forecasts.

No impact to warming.

Stampf 7—Olaf Stampf, Not the End of the World as We Know It, Der Spiegel, 5-7, http://www.spiegel.de/international/germany/0,1518,481684,00.html

The truth is probably somewhere between these two extremes. Climate change will undoubtedly have losers -- but it will also have winners. There will be a reshuffling of climate zones on earth. And there is something else that we can already say with certainty: The end of the world isn't coming any time soon.

Largely unnoticed by the public, climate researchers are currently embroiled in their own struggle over who owns the truth. While some have always seen themselves as environmental activists aiming to shake humanity out of its complacency, others argue for a calmer and more rational approach to the unavoidable.

One member of the levelheaded camp is Hans von Storch, 57, a prominent climate researcher who is director of the Institute for Coastal Research at the GKSS Research Center in Geesthacht in northern Germany. "We have to take away people's fear of climate change," Storch told DER SPIEGEL in a recent interview. "Unfortunately many scientists see themselves too much as priests whose job it is to preach moralistic sermons to people."

Keeping a cool head is a good idea because, for one thing, we can no longer completely prevent climate change. No matter how much governments try to reduce carbon dioxide emissions, it will only be possible to limit the rise in global temperatures to about 2 degrees Celsius (3.6 degrees Fahrenheit) by the end of the century. But even this moderate warming would likely have far fewer apocalyptic consequences than many a prophet of doom would have us believe.

For one thing, the more paleontologists and geologists study the history of the earth's climate, the more clearly do they recognize just how much temperatures have fluctuated in both directions in the past. Even major fluctuations appear to be completely natural phenomena.

Additionally, some environmentalists doubt that the large-scale extinction of animals and plants some have predicted will in fact come about. "A warmer climate helps promote species diversity," says Munich zoologist Josef Reichholf.

Also, more detailed simulations have allowed climate researchers to paint a considerably less dire picture than in the past -- gone is the talk of giant storms, the melting of the Antarctic ice shield and flooding of major cities.

Improved regionalized models also show that climate change can bring not only drawbacks, but also significant benefits, especially in northern regions of the world where it has been too cold and uncomfortable for human activity to flourish in the past. However it is still a taboo to express this idea in public.

For example, countries like Canada and Russia can look forward to better harvests and a blossoming tourism industry, and the only distress the Scandinavians will face is the guilty conscience that could come with benefiting from global warming.

Palm Trees in Germany

There is no doubt that there will be droughts in other parts of the world, especially in subtropical regions. But the widespread assumption that it is developing countries -- that is, the world's poor -- who will, as always, be the ones to suffer is incorrect. According to current predictions, precipitation in large parts of Africa will hardly decrease at all, except in the southern part of the continent. In fact, these same forecasts show the Sahel, traditionally a region beset by drought and famine, actually becoming wetter.

By contrast, some wealthy industrialized nations -- in fact, those principally responsible for climate change -- will likely face growing problems related to drought. The world's new drought zones lie in the southern United States and Australia, but also in Mediterranean countries like Spain, Italy and Greece.

All of this will lead to a major shift within Europe, potentially leading to tough times for southern Spain's mega-resorts and boom times for hotels along the North Sea and Baltic Sea coasts. While the bulk of summer vacationers will eventually lose interest in roasting on Spain's Costa del Sol, Mediterranean conditions could prevail between the German North Sea island of Sylt and Bavaria's Lake Starnberg. The last few weeks of spring in Germany offered a taste of what's to come, as sun-loving crowds packed Berlin's urban beach bars and Munich's beer gardens.

The predicted temperature increase of 3 degrees Celsius would mean that summers in Hamburg, not far from the North Sea coast, would be as warm as they are today in the southwestern city of Freiburg, while conditions in Freiburg would be more like those in Marseille today. Germany will undoubtedly be one of the beneficiaries of climate change. Perhaps palm trees will be growing on the island of Helgoland in the North Sea soon, and German citizens will be saving billions in heating costs -- which in turn would lead to a reduction in CO2 emissions.

But climate change will also have its drawbacks. While German summers will be less rainy, fall and winter rainfall in the country's north will increase by up to 30 percent -- and snow will be a thing of the past. Heavy downpours will also become more common. To avoid flooding, steps will have to be taken to provide better drainage for fields and farmlands, as well as to restore natural flood plains.

Meanwhile, the Kiel Institute for World Economics warns that higher temperatures could mean thousands of heat-related deaths every year. But the extrapolations that lead to this dire prediction are based on the mortality rate in the unusually hot summer of 2003, for which Germans were wholly unprepared. But if hot summer days do become the norm, people will simply adjust by taking siestas and installing air-conditioning.

The medical benefits of higher average temperatures have also been ignored. According to Richard Tol, an environmental economist, "warming temperatures will mean that in 2050 there will be about 40,000 fewer deaths in Germany attributable to cold-related illnesses like the flu.”

Another widespread fear about global warming -- that it will cause super-storms that could devastate towns and villages with unprecedented fury -- also appears to be unfounded. Current long-term simulations, at any rate, do not suggest that such a trend will in fact materialize.

"According to our computer model, neither the number nor intensity of storms is increasing," says Jochem Marotzke, director of the Hamburg-based Max Planck Institute for Meteorology, one of the world's leading climate research centers. "Only the boundaries of low-pressure zones are changing slightly, meaning that weather is becoming more severe in Scandinavia and less so in the Mediterranean."

According to another persistent greenhouse legend, massive flooding will strike major coastal cities, raising horrific scenarios of New York, London and Shanghai sinking into the tide. However this horror story is a relic of the late 1980s, when climate simulations were far less precise than they are today. At the time, some experts believed that the Antarctic ice shield could melt, which would in fact lead to a dramatic 60-meter (197-foot) rise in sea levels. The nuclear industry quickly seized upon and publicized the scenario, which it recognized as an argument in favor of its emissions-free power plants.

But it quickly became apparent that the horrific tale of a melting South Pole was nothing but fiction. The average temperature in the Antarctic is -30 degrees Celsius. Humanity cannot possibly burn enough oil and coal to melt this giant block of ice. On the contrary, current climate models suggest that the Antarctic will even increase in mass: Global warming will cause more water to evaporate, and part of that moisture will fall as snow over Antarctica, causing the ice shield to grow. As a result, the total rise in sea levels would in fact be reduced by about 5 cm (2 inches).

It's a different story in the warmer regions surrounding the North Pole. According to an American study published last week, the Arctic could be melting even faster than previously assumed. But because the Arctic sea ice already floats in the water, its melting will have virtually no effect on sea levels.

'We Still Have Enough Time to React'

Nevertheless, sea levels will rise worldwide as higher temperatures cause the water in the oceans to expand. In addition, more water will flow into the ocean with the gradual thawing of the Greenland ice sheet. All things considered, however, in the current IPCC report climatologists are predicting a rise in sea levels of only about 40 centimeters (16 inches) -- compared with the previous estimate of about one meter (more than three feet). A 40-centimeter rise in sea levels will hardly result in more catastrophic flooding. "We have more computer models and better ones today, and the prognoses have become more precise as a result," explains Peter Lemke of the Alfred Wegener Institute for Polar and Marine Research in the northern German port city of Bremerhaven.

Some researchers do, however, estimate that regional effects could produce an 80-centimeter (31-inch) rise in the sea level along Germany's North Sea coast. This will lead to higher storm surges -- a problem the local population, already accustomed to severe weather, could easily address by building taller dikes.

Another comforting factor -- especially for poorer countries like Bangladesh -- is that none of these changes will happen overnight, but gradually over several decades. "We still have enough time to react," says Storch.

In short, the longer researchers allow their supercomputers to crunch the numbers, the more does the expected deluge dissipate. A rise in sea levels of several meters could only occur if Greenland were largely ice-free, but this is something scientists don't expect to happen for at least a few more centuries or even millennia. This lengthy timeframe raises the question of whether the current prognoses are even reliable.

Warming is inevitable.

Gelbspan 7— American writer and activist. He has written two books relating to global warming, Ross, It’s too late to stop climate change, argues Ross Gelbspan — so what do we do now?, Grist, 12-11, http://grist.org/article/beyond-the-point-of-no-return/

But even assuming the wildest possible success of their initiatives — that humanity decided tomorrow to replace its coal- and oil-burning energy sources with noncarbon sources — it would still be too late to avert major climate disruptions. No national energy infrastructure can be transformed within a decade.

All these initiatives address only one part of the coming reality. They recall the kind of frenzied scrambling that is characteristic of trauma victims — a frantic focus on other issues, any other issues — that allows people to avoid the central take-home message of the trauma: in this case, the overwhelming power of inflamed nature.

Within the last two years, a number of leading scientists — including Rajendra Pachauri, head of the Intergovernmental Panel on Climate Change (IPCC), British ecologist James Lovelock, and NASA scientist James Hansen — have all declared that humanity is about to pass or already has passed a “tipping point” in terms of global warming. The IPCC, which reflects the findings of more than 2,000 scientists from over 100 countries, recently stated that it is “very unlikely” that we will avoid the coming era of “dangerous climate change.”

### Nuclear Leadership

No shot of US nuclear leadership.

Sokolski 10—Henry Sokolski Executive Director The Nonproliferation Policy Education Center Washington, DC, Nuclear Cooperation and the Atomic Energy Act: Ten Worries, Five Remedies. The House Committee on Foreign Affairs “Nuclear Cooperation after Khan and Iran: Time for a New Paradigm” September 22, 2010

3. Despite recent efforts to establish tougher nonproliferation requirements in the U.S.-United Arab Emirates (UAE) civilian nuclear cooperation deal, many states are not buying this model. Worse, the State Department now seems to be backing off promoting this deal as a “gold standard” for nuclear cooperation more generally. Recently, State announced that it would proceed with a nuclear cooperative agreement with Vietnam that lacked any of the key nonproliferation provisions contained in the UAE agreement (i.e., a requirement that the recipient of aid ratify the IAEA’s Additional Protocol on nuclear inspections and that the recipient forswear acquiring the means to make nuclear fuel or heavy water). Meanwhile, several Middle Eastern states, including Turkey, Egypt, Saudi Arabia, and Jordan, have refused U.S. requests to adopt similar conditions.

4. Nearly all of the world’s key nuclear suppliers – i.e., Russia, France, Japan South Korea, Canada, and China – are undercutting U.S. efforts to establish the UAE deal as an international standard. All of these alternative suppliers have been offering concessionary government-backed financing or discount pricing on their civilian nuclear exports (something the U.S. reactor vendors cannot afford) to seal deals. More important, all have recently reached or are in the process of negotiating nuclear cooperative agreements that lack the nonproliferation conditions contained in the U.S.- UAE nuclear cooperative agreement. Now, it appears, some in our State Department want to back off insisting on the UAE deal’s key nonproliferation provisions even in the Middle East. All of this threatens to unravel the U.S. UAE nonproliferation initiative, which both Presidents Bush and Obama have backed. The reason why is simple: Under the terms of the U.S.-UAE nuclear cooperative deal, if the U.S. approves any nuclear cooperative agreement that has more favorable terms for any other Middle Eastern state, the UAE has legal grounds to demand renegotiation of their own nuclear agreement with the U.S. to secure similar liberal terms.

No proliferation –

Hymans 12 - USC Associate Professor of IR [Jacques Hymans, 4/16/12, North Korea's Lessons for (Not) Building an Atomic Bomb, www.foreignaffairs.com/articles/137408/jacques-e-c-hymans/north-koreas-lessons-for-not-building-an-atomic-bomb?page=show]

Washington's miscalculation is not just a product of the difficulties of seeing inside the Hermit Kingdom. It is also a result of the broader tendency to overestimate the pace of global proliferation. For decades, Very Serious People have predicted that strategic weapons are about to spread to every corner of the earth. Such warnings have routinely proved wrong - for instance, the intelligence assessments that led to the 2003 invasion of Iraq - but they continue to be issued. In reality, despite the diffusion of the relevant technology and the knowledge for building nuclear weapons, the world has been experiencing a great proliferation slowdown. Nuclear weapons programs around the world are taking much longer to get off the ground - and their failure rate is much higher - than they did during the first 25 years of the nuclear age.

As I explain in my article "Botching the Bomb" in the upcoming issue of Foreign Affairs, the key reason for the great proliferation slowdown is the absence of strong cultures of scientific professionalism in most of the recent crop of would-be nuclear states, which in turn is a consequence of their poorly built political institutions. In such dysfunctional states, the quality of technical workmanship is low, there is little coordination across different technical teams, and technical mistakes lead not to productive learning but instead to finger-pointing and recrimination. These problems are debilitating, and they cannot be fixed simply by bringing in more imported parts through illicit supply networks. In short, as a struggling proliferator, North Korea has a lot of company.

Their authors exaggerate – prolif risk low and no war. Aff is just alarmism

Farley 11 - assistant professor at the Patterson School of Diplomacy and International Commerce at the University of Kentucky [Robert Farley, "Over the Horizon: Iran and the Nuclear Paradox," 11-16, www.worldpoliticsreview.com/articles/10679/over-the-horizon-iran-and-the-nuclear-paradox]

But states and policymakers habitually overestimate the impact of nuclear weapons. This happens among both proliferators and anti-proliferators. Would-be proliferators seem to expect that possessing a nuclear weapon will confer “a seat at the table” as well as solve a host of minor and major foreign policy problems. Existing nuclear powers fear that new entrants will act unpredictably, destabilize regions and throw existing diplomatic arrangements into flux. These predictions almost invariably turn out wrong; nuclear weapons consistently fail to undo the existing power relationships of the international system. The North Korean example is instructive. In spite of the dire warnings about the dangers of a North Korean nuclear weapon, the region has weathered Pyongyang’s nuclear proliferation in altogether sound fashion. Though some might argue that nukes have “enabled” North Korea to engage in a variety of bad behaviors, that was already the case prior to its nuclear test. The crucial deterrent to U.S. or South Korean action continues to be North Korea’s conventional capabilities, as well as the incalculable costs of governing North Korea after a war. Moreover, despite the usual dire predictions of nonproliferation professionals, the North Korean nuclear program has yet to inspire Tokyo or Seoul to follow suit. The DPRK’s program represents a tremendous waste of resources and human capital for a poor state, and it may prove a problem if North Korea endures a messy collapse. Thus far, however, the effects of the arsenal have been minimal. Israel represents another case in which the benefits of nuclear weapons remain unclear. Although Israel adopted a policy of ambiguity about its nuclear program, most in the region understood that Israel possessed nuclear weapons by the late-1960s. These weapons did not deter Syria or Egypt from launching a large-scale conventional assault in 1973, however. Nor did they help the Israeli Defense Force compel acquiescence in Lebanon in 1982 or 2006. Nuclear weapons have not resolved the Palestinian question, and when it came to removing the Saddam Hussein regime in Iraq, Israel relied not on its nuclear arsenal but on the United States to do so -- through conventional means -- in 2003. Israeli nukes have thus far failed to intimidate the Iranians into freezing their nuclear program. Moreover, Israel has pursued a defense policy designed around the goal of maintaining superiority at every level of military escalation, from asymmetrical anti-terror efforts to high-intensity conventional combat. Thus, it is unclear whether the nuclear program has even saved Israel any money. The problem with nukes is that there are strong material and normative pressures against their use, not least because states that use nukes risk incurring nuclear retaliation. Part of the appeal of nuclear weapons is their bluntness, but for foreign policy objectives requiring a scalpel rather than a sledgehammer, they are useless. As a result, states with nuclear neighbors quickly find that they can engage in all manner of harassment and escalation without risking nuclear retaliation. The weapons themselves are often more expensive than the foreign policy objectives that they would be used to attain. Moreover, normative pressures do matter. Even “outlaw” nations recognize that the world views the use of nuclear -- not to mention chemical or biological -- weapons differently than other expressions of force. And almost without exception, even outlaw nations require the goodwill of at least some segments of the international community. Given all this, it is not at all surprising that many countries eschew nuclear programs, even when they could easily attain nuclear status. Setting aside the legal problems, nuclear programs tend to be expensive, and they provide relatively little in terms of foreign policy return on investment. Brazil, for example, does not need nuclear weapons to exercise influence in Latin America or deter its rivals. Turkey, like Germany, Japan and South Korea, decided a long time ago that the nuclear “problem” could be solved most efficiently through alignment with an existing nuclear power. Why do policymakers, analysts and journalists so consistently overrate the importance of nuclear weapons? The answer is that everyone has a strong incentive to lie about their importance. The Iranians will lie to the world about the extent of their program and to their people about the fruits of going nuclear. The various U.S. client states in the region will lie to Washington about how terrified they are of a nuclear Iran, warning of the need for “strategic re-evaluation,” while also using the Iranian menace as an excuse for brutality against their own populations. Nonproliferation advocates will lie about the terrors of unrestrained proliferation because they do not want anyone to shift focus to the manageability of a post-nuclear Iran. The United States will lie to everyone in order to reassure its clients and maintain the cohesion of the anti-Iran block. None of these lies are particularly dishonorable; they represent the normal course of diplomacy. But they are lies nevertheless, and serious analysts of foreign policy and international relations need to be wary of them. Nonproliferation is a good idea, if only because states should not waste tremendous resources on weapons of limited utility. Nuclear weapons also represent a genuine risk of accidents, especially for states that have not yet developed appropriately robust security precautions. Instability and collapse in nuclear states has been harrowing in the past and will undoubtedly be harrowing in the future. All of these threats should be taken seriously by policymakers. Unfortunately, as long as deception remains the rule in the practice of nuclear diplomacy, exaggerated alarmism will substitute for a realistic appraisal of the policy landscape.

IFRs lead to prolif – Don’t cause switch from Gen 3 reactors and dismantles START

Wauchope 12 – Antinuclear campaigner, spokesperson for Women’s Electoral Lobby on nuclear issues, on a panel with Dr. Kameny, Barry Jones, Barry Cohen and Philip Adams [Noel Wauchope, Independent Australia, 7/5/12, http://www.independentaustralia.net/2012/environment/in-dispraise-of-integral-fast-nuclear-reactors/]

As these fast reactors need to get the processed plutonium and/or enriched uranium, these materials have to be procured from somewhere. The nuclear lobby portrays this as a benefit to the world, by using up the existing plutonium and so on. Now, I don’t know whether they say this out of naiveté or hypocrisy, but the obvious reality is that the old-fashioned Generation 3 and 4 reactors will have to be kept going – or uranium enrichment and reprocessing will have to keep going – to turn out more plutonium, which must then travel to the new IFRs. Of course, all this flies in the face of President Obama’s move to limit nuclear weapons proliferation, the New START treaty with Russia, which depends on confining the spread of uranium enrichment and weapons grade plutonium. As far as Australia goes, I thought that we were supposed to be cooperating with the USA.

IFRs lead to dirty bombs

Wauchope 12 – Antinuclear campaigner, spokesperson for Women’s Electoral Lobby on nuclear issues, on a panel with Dr. Kameny, Barry Jones, Barry Cohen and Philip Adams [Noel Wauchope, Independent Australia, 7/5/12, http://www.independentaustralia.net/2012/environment/in-dispraise-of-integral-fast-nuclear-reactors/]

And just as safety impinges on costs, so does security. These small nuclear reactors have to be guarded, and so does the plutonium and enriched uranium fuel being transported to the reactor. And so do the eventual radioactive wastes produced by the IFRs. Security alone would be a huge expense — and more so because it would involve guarding not just a few big reactors, but a large number of small ones. Next, there is the issue of weapons’ danger. The IFR’s make wastes that are not suitable for “traditional” atomic bombs. However, in these days of terrorism fears we have all heard of those ‘simple’ Improvised Explosive Devices (IEDs), which are much more fashionable and cheap to make. Because the IFR’s still produce dangerous, toxic, radioactive wastes — it is still possible for terrorists to use this to make some sort of “dirty bomb”, using ordinary explosives to send the radioactive particles flying about.

Competitiveness is resilient and has no impact.

RAND 8 – “U.S. Competitiveness in Science and Technology”, Prepared for the Office of the Secretary of Defense, http://www.rand.org/pubs/monographs/2008/RAND\_MG674.pdf

Another opposing view suggests that fears of a looming S&T crisis may result from a misunderstanding of concepts driving the issue. The July 2006 Economist noted the “wide range of potential remedies” being suggested to the purported S&T problem, which include “getting more Americans to study science and engineering, bigger tax breaks for research and development, and trade protection to prevent the innovative hordes from China and India from storming America’s gates” (The Economist, 2006). The piece continues by citing a new paper by Amar Bhidé, of Columbia University’s business school, who argues that these supposed remedies, and the worries that lie behind them, are based on a misconception of how innovation works and of how it contributes to economic growth. . . .This consists, first, of paying too much attention to the upstream development of new inventions and technologies by scientists and engineers, and too little to the downstream process of turning these inventions into products that tempt people to part with their money, and, second, of the belief that national leadership in upstream activities is the same thing as leadership in generating economic value from innovation. . . . Mr Bhidé argues that this downstream innovation . . . is the most valuable kind and what America is best at . . . that most of the value of innovations accrues to their users not their creators—and stays in the country where the innovation is consumed. So if China and India do more invention, so much the better for American consumers**.** (The Economist, 2006) In work published over a decade ago, economist Paul Krugman questions whether the notion of competition in S&T is even relevant. He argues that the idea that nations “compete” is incorrect; countries are not like corporations and “are [not] to any important degree in economic competition with each other” (Krugman, 1994). Major industrial nations sell products that compete with each other, yet these nations are also each other’s main export markets and each other’s main suppliers of useful imports. More broadly, international trade is not a zero-sum game. For example, if the European economy does well, this helps the United States by providing it with larger markets and goods of superior quality at lower prices. Further, he argues that the growth rate of U.S. living standards essentially equals the growth rate of domestic productivity, not U.S. productivity relative to competitors; and enhancing domestic productivity is in the hands of Americans, not foreigners. Part of the reason for this, Krugman argues, is that the world is not as interdependent as one would think: 90 percent of the U.S. economy consists of goods and services produced for domestic use, i.e., produced by Americans, for Americans. But this is not to deny the importance of technological progress, and beneath it, science and technology, as a determinant of economic progress and improvement in the standard of living.

### Solvency

Multiple barriers prevent nuclear investment

Fahring, JD – U Texas School of Law, ’11 [T.L., 41 Tex. Envtl. L.J. 279]

V. Potential Problems with the Combined Government Measures to Promote New Nuclear Construction In 2007, a developer filed with the NRC the first application for a new reactor in nearly thirty years. n263 To date, the NRC has received eighteen COL applications for twenty-eight reactors. n264 The NRC has granted four ESPs and four Standard Design Certifications. n265 Applicants have filed seventeen applications for a Standard Design Certification. n266 The DOE has another seven Standard Design Certifications under review. n267 This recent spate of licensing activity after so long a dry-spell arguably owes much to the measures the United States has taken as of late to promote new nuclear [\*303] development. To the extent that these applications have been filed, these measures have been a success. But this initial success does not necessarily ensure that new nuclear construction will take place: In announcing the new reactor license applications ... utilities have made clear that they are not committed to actually building the reactors, even if the licenses are approved. Large uncertainties about nuclear plant construction costs still remain ... All those problems helped cause the long cessation of U.S. reactor orders and will need to be addressed before financing for new multibillion-dollar nuclear power plants is likely to be obtained. n268 A number of obstacles, thus, still might stand in the way of new nuclear construction in the United States. A. Developers Have Not Followed the Ideal Sequence in the NRC's Streamlined Licensing Process First, developers have failed to follow the ideal steps of the NRC's streamlined licensing process. n269 NRC Commissioner Gregory Jaczko explains: The idea was that utilities could get a plant design completed and certified and a site reviewed first ... They could then submit an application that simply references an already certified design and an approved early site permit. But almost no one is following that ideal process. Instead, we are once again doing everything in parallel ... n270 Developers also are delaying review of their applications. n271 They have put four of the seventeen COL applications filed with the NRC on hold. n272 They also have yet to complete the seventeen applications for designs filed with the NRC and are continuing to revise the four designs under review. n273 A possible explanation for the problems with the streamlined licensing process is that much of 2005 EPACT provides incentives only for the first few developers to proceed with new nuclear construction. In particular, the production tax credits, as construed by the IRS, were available only for the first 6,000 megawatts of additional nameplate capacity filed through COL applications with the NRC. n274 All COL applications that the NRC has received were filed after IRS Notice 2006-40, which provided this guidance. n275 "The deadline for automatic eligibility for the tax credit appears to [have provided] a strong incentive for nuclear plant applicants to file with the NRC by [\*304] the end of 2008 ..." n276 Given this incentive, developers might have filed quickly and with incomplete information, in the process failing to follow the NRC's ideal streamlined licensing sequence. n277 These problems with the licensing process could be detrimental to continued nuclear development. Defects in the licensing process led to cost overruns in the 1970s and 1980s, which dissuaded developers from undertaking any new nuclear construction for nearly thirty years. n278 Continued problems would constitute an input cost uncertainty to developers who have not yet filed applications, which might cause them to further delay new construction. B. The Reduction in Reactor Licensing Hearing Formality Might Cause a Public Backlash Second, insofar as the NRC's reduction in nuclear licensing hearing formality limits public participation in the licensing process, it could lead to a public backlash. "Public involvement has two basic functions: it permits the raising of issues that will improve the safety of nuclear power plants, and it enhances the transparency and level of confidence and trust that the public can have in nuclear regulation and decision-making." n279 Measures that limit public participation in the nuclear licensing process undermine both of these functions. n280 As noted in the overview of the history of U.S. nuclear construction above, nuclear construction has always been extremely sensitive to changes in public opinion. In 2009, a majority of the American public favored nuclear power. n281 However, only a minority of the public favored new nuclear construction in the area in which they live. n282 After the nuclear crisis at the Fukushima Daiichi plant in Japan, U.S. public support for nuclear power fell sharply, with polls showing that many feared a major nuclear accident in this country. n283 Limiting public participation in the licensing process could decrease public support by undermining any trust that the public has in the regulatory system. This defect could lead to more litigation and a repeat of U.S. nuclear construction's nightmarish cost overruns of the 1970s and 1980s, thus increasing input cost uncertainty to developers. n284 [\*305] C. Costs for Nuclear Construction Still Might Rise Over Time Third, much of 2005 EPACT is animated by the belief that costs will be highest for the first few reactors to be built: as developers build subsequent units, costs will go down. n285 The history of U.S. nuclear development shows this assumption not necessarily to be the case. n286 Historically, costs of nuclear construction rose over time. Nothing indicates that the costs of nuclear construction will do otherwise now. n287 D. The Production Tax Credit Might Not Be Sufficient to Reduce Costs of Construction in a Reactor Series Fourth, even if conditions are such that costs will decrease over time, the production tax credits in 2005 EPACT might not be sufficient to reduce costs in a reactor series. n288 The credits go to those first reactors up to 6,000 megawatts in nameplate capacity filed with the NRC. n289 However, at the time of this note, the NRC has approved four standard design certifications. n290 Because each COL has a reactor with a nameplate capacity between 1,200-1,500 megawatts, at most only four to five reactors would be covered. n291 Therefore, only one or two reactors from each design certification would be built that would qualify for the credit. n292 Thus, this tax credit might not be enough to reduce costs through series production so that subsequent units would be economically viable without a tax credit. n293 Moreover, the production tax credit does not have any adjustment for inflation, which could decrease its benefits to the first new plant to come online. n294 Because the benefit of the production tax credit is uncertain, developers have less incentive to go through with new construction.

Prefer our ev—recent trends show nuclear is crashing, but their authors always think that the Renaissance is around the corner

Maize 12 [Kennedy Maize, “A Bumpy Road for Nukes,” 8/6/12, POWERnews]

Washington, D.C., 6 August 2012 — It’s been a rough road for nuclear advocates in the U.S. of late, although nothing seems to dent the Pollyanna armor of the nuclear crowd, always appearing to believe a revival is just over the horizon and headed into view. Here are a few fraught developments for the nuclear business that suggest the positive vision just might be a mirage. \* GE CEO Jeff Immelt in a recent interview with the Financial Times revealed a surprising and somewhat uncharacteristic realism with regard to the company’s nuclear future and that of its partner in radioactivity, Hitachi. In London for the Summer Olympics, Immelt told a reporter for the FT, “It’s really a gas and wind world today. When I talk to the guys who run the oil companies, they say look, they’re finding more gas all the time. It’s just hard to justify nuclear, really hard. Gas is so cheap, and at some point, really, economics rule.” For the nuclear industry, economics has always been the fundamental enemy – not the green-tinged, hairy anti-nuke activists, but the folks with the green eye shades, sharp pencils and, today, even sharper spreadsheets. The nuclear execs long have pursued governments as their bulwark against markets, and that has often worked. Today, as Immelt notes, gas has made the market forces so overwhelming, at least in those places such as the U.S. where gas is astonishingly abundant, that even government likely can’t come to the rescue of nuclear power. Could that have something to do with the abject failure of the 2005 Energy Policy Act’s loan guarantee provisions, which have not worked for renewables any better than they have worked for nukes? Indeed, the threat of gas is at least as potentially toxic for many wind and solar projects as it is for nuclear and coal new build. \* In Georgia, the Southern Company is facing what looks like growing problems with its Vogtle project, which aims for two new nuclear units using the unproven but promising Westinghouse AP1000 reactor design. With its federal loan in jeopardy (Southern says it can go ahead without taxpayer funds) and the project running behind schedule and over budget, the Atlanta-based utility now faces lawsuits brought by the reactor vendor and the construction contractor Shaw Group. The amount in dispute, some $29 million, is tiny compared to the multi-billion-dollar price tag for the project. But it may be revealing of ruptures in the deal. Robert Marritz, an energy lawyer and veteran industry observer, publisher of ElectricityPolicy.com, commented that “the very filing of a lawsuit at this stage of the first nuclear plant construction in decades is stunning, reflecting stresses in a relationship that should, one would think, be contained and resolved rather than boiling over into public view.” Indeed, the parties are also engaged in a larger, perhaps nastier, dispute involving $800 million that has not gotten much public exposure. And that’s real money. \* Moving to California, the long-running saga of Edison International’s San Onofre Nuclear Generating Station (SONGS, how’s that for an inept acronym?) continues, with little clarity in sight. The plant has been out of service since January as a result of unexpected and still unexplained tube wear in the plant’s steam generators. According to Bloomberg New Energy Finance, the outage is costing the utility about $1.5 million a day just in lost revenue. The cost to the state in jeopardized reliability hasn’t been calculated, although Edison has started up mothballed gas capacity to fill the supply gap. There is no firm date for restart at the nuclear plant. In the meantime, the California Public Utilities Commission is planning a formal investigation of the outage and Edison’s response, but recently decided to delay that until the utility files a legally-required report with the CPUC November 1. CPUC President Mike Peevey is a former executive with the Los Angeles-based utility.

Incentives are insufficient

Maize 12 [Kennedy Maize, “A Bumpy Road for Nukes,” 8/6/12, POWERnews]

J. Frank Russell, senior vice president at Concentric Energy Advisors, described the ambiguous status of nuclear power today from a U.S. perspective. By many counts, he said, “this should be a year of celebration for ‘new nuclear’ in the U.S.” because Southern Co. is building Vogtle Units 3 and 4, and Scana Corp. has a green light from the Nuclear Regulatory Commission (NRC) for the two new units at its V.C. Summer station. In contrast to what could be justified optimism, “the reality is different,” Russell said. “The pipeline is empty, with other proposed units stalled or delayed by the sponsors.” The promise of “up to a dozen” new units that was common in the industry a few years ago “has mostly gone away,” and the industry has awakened to a less-friendly environment. Many reasons account for faded nuclear dreams in the U.S., Russell said. The 2008 recession lowered demand for power and reduced financial markets’ appetite for risk. The collapse of natural gas prices as a result of the shale gas revolution undercut the economics. So did the federal government’s failure to put a price on carbon emissions. Fukushima also played a role. But the key factor dogging the U.S. nuclear sector has been the high and growing cost of nuclear power plants. “While many of these issues may be considered temporary,” said Russell, “the sheer total cost of large-scale new nuclear units is just too large for many companies to bear.” Few companies have the capitalization and appetite for risk to take on a project that could cost $10 billion, the current estimate for a new nuclear unit in the U.S. For a merchant generator, finding the equity capital for such an undertaking is problematic. “Even with a loan guarantee,” he said, “the equity may be impossible to raise.”What will it take for a real U.S. nuclear turnaround? Russell offered a list, with each item necessary to achieving rebirth but none sufficient in itself. He said that demand growth will have to return and that the current generating capacity surplus must decline. Natural gas prices will have to double to at least $4/million cubic feet. A carbon price also must be put in place. The Vogtle and Summer units must come in on schedule and must meet budget targets (an outcome already put in doubt by cost increases recently announced at Vogtle). And policy makers and the public must be positive and supportive.

International consensus proves they’re not competitive and power generation will be small

PR Newswire 10 [“Report: Unsuccessful 'Fast Breeder' Is No Solution for Long-Term Reactor Waste Disposal Issues” February 17, 2010, PR Newswire, International Panel on Fissile Materials]

Hopes that the "fast breeder"- a plutonium-fueled nuclear reactor designed to produce more fuel than it consumed -- might serve as a major part of the long-term nuclear waste disposal solution are not merited by the dismal track record to date of such sodium-cooled reactors in France, India, Japan, the Soviet Union/Russia, the United Kingdom and the United States, according to a major new study from the International Panel on Fissile Materials (IPFM).

Titled "Fast Breeder Reactor Programs: History and Status," the IPFM report concludes: "The problems (with fast breeder reactors) ... make it hard to dispute Admiral Hyman Rickover's summation in 1956, based on his experience with a sodium-cooled reactor developed to power an early U.S. nuclear submarine, that such reactors are 'expensive to build, complex to operate, susceptible to prolonged shutdown as a result of even minor malfunctions, and difficult and time-consuming to repair.'" Plagued by high costs, often multi-year downtime for repairs (including a 15-year reactor restart delay in Japan), multiple safety problems (among them often catastrophic sodium fires triggered simply by contact with oxygen), and unresolved proliferation risks, "fast breeder" reactors already have been the focus of more than $50 billion in development spending, including more than $10 billion each by the U.S., Japan and Russia. As the IPFM report notes: "Yet none of these efforts has produced a reactor that is anywhere near economically competitive with light-water reactors ... After six decades and the expenditure of the equivalent of tens of billions of dollars, the promise of breeder reactors remains largely unfulfilled and efforts to commercialize them have been steadily cut back in most countries." The new IPFM report is a timely and important addition to the understanding about reactor technology. Today, with increased attention being paid both to so-called "Generation IV" reactors, some of which are based on the fast reactor technology, and a new Obama Administration panel focusing on reprocessing and other waste issues, interest in some quarters has shifted back to fast reactors as a possible means by which to bypass concerns about the long-term storage of nuclear waste. Frank von Hippel, Ph.D., co-chair of the International Panel on Fissile Materials, and professor of Public and International Affairs, Woodrow Wilson School, Princeton University, said: "The breeder reactor dream is not dead but it has receded far into the future. In the 1970s, breeder advocates were predicting that the world would have thousands of breeder reactors operating by now. Today, they are predicting commercialization by approximately 2050. In the meantime, the world has to deal with the legacy of the dream; approximately 250 tons of separated weapon-usable plutonium and ongoing - although, in most cases struggling - reprocessing programs in France, India, Japan, Russia and the United Kingdom." Mycle Schneider, Paris, international consultant on energy and nuclear policy, said: "France built with Superphenix, the only commercial-size plutonium fueled breeder reactor in nuclear history. After an endless series of very costly technical, legal and safety problems it was shut down in 1998 with one of the worst operating records in nuclear history." Thomas B. Cochran, nuclear physicist and senior scientist in the Nuclear Program at the Natural Resources Defense Council, said: "Fast reactor development programs failed in the: 1) United States; 2) France; 3) United Kingdom; 4) Germany; 5) Japan; 6) Italy; 7) Soviet Union/Russia 8) U.S. Navy and 9) the Soviet Navy. The program in India is showing no signs of success and the program in China is only at a very early stage of development. Despite the fact that fast breeder development began in 1944, now some 65 year later, of the 438 operational nuclear power reactors worldwide, only one of these, the BN-600 in Russia, is a commercial-size fast reactor and it hardly qualifies as a successful breeder. The Soviet Union/Russia never closed the fuel cycle and has yet to fuel BN-600 with plutonium." M.V. Ramana, Ph.D., visiting research scholar, Woodrow Wilson School and the Program in Science, Technology, and Environmental Policy, Princeton University, said: "Along with Russia, India is one of only two countries that are currently constructing commercial scale breeder reactors. Both the history of the program and the economic and safety features of the reactor suggest, however, that the program will not fulfill the promises with which it was begun and is being pursued. Breeder reactors have always underpinned the DAE's claims about generating large quantities of cheap electricity necessary for development. Today, more than five decades after those plans were announced, that promise is yet to be fulfilled. As elsewhere, breeder reactors are likely to be unsafe and costly, and their contribution to overall electricity generation will be modest at best."