# Meltdowns

**SMRs are safe – distinct from other nuclear designs**

**Shellenberger 9/7**, Michael, president of the breakthrough institute, Jessica Lovering, policy analyst at the breakthough institute, Ted Nordhaus, chairman of the breakthrough institute, [“Out of the Nuclear Closet,” http://www.foreignpolicy.com/articles/2012/09/07/out\_of\_the\_nuclear\_closet?page=0,0]

To move the needle on nuclear energy to the point that it might actually be capable of displacing fossil fuels, we'll need new nuclear technologies that are cheaper and smaller. Today, there are a range of nascent, smaller nuclear power plant designs, some of them modifications of the current light-water reactor technologies used on submarines, and others, like thorium fuel and fast breeder reactors, which are based on entirely different nuclear fission technologies. Smaller, modular reactors can be built much faster and cheaper than traditional large-scale nuclear power plants**.** Next-generation nuclear reactors are designed to be incapable of melting down, produce drastically less radioactive waste, make it very difficult or impossible to produce weapons grade material, useless water, and require less maintenance. Most of these designs still face substantial technical hurdles before they will be ready for commercial demonstration. That means a great deal of research and innovation will be necessary to make these next generation plants viable and capable of displacing coal and gas. The United States could be a leader on developing these technologies, but unfortunately U.S. nuclear policy remains mostly stuck in the past. Rather than creating new solutions, efforts to restart the U.S. nuclear industry have mostly focused on encouraging utilities to build the next generation of large, light-water reactors with loan guarantees and various other subsidies and regulatory fixes. With a few exceptions, this is largely true elsewhere around the world as well. Nuclear has enjoyed bipartisan support in Congress for more than 60 years, but the enthusiasm is running out. The Obama administration deserves credit for authorizing funding for two small modular reactors, which will be built at the Savannah River site in South Carolina. But a much more sweeping reform of U.S. nuclear energy policy is required. At present, the Nuclear Regulatory Commission has little institutional knowledge of anything other than light-water reactors and virtually no capability to review or regulate alternative designs. This affects nuclear innovation in other countries as well, since the NRC remains, despite its many critics, the global gold standard for thorough regulation of nuclear energy. Most other countries follow the NRC's lead when it comes to establishing new technical and operational standards for the design, construction, and operation of nuclear plants. What's needed now is a new national commitment to the development, testing, demonstration, and early stage commercialization of a broad range of new nuclear technologies -- from much smaller light-water reactors to next generation ones -- in search of a few designs that can be mass produced and deployed at a significantly lower cost than current designs. This will require both greater public support for nuclear innovation and an entirely different regulatory framework to review and approve new commercial designs. In the meantime, developing countries will continue to build traditional, large nuclear power plants. But time is of the essence. With the lion's share of future carbon emissions coming from those emerging economic powerhouses, the need to develop smaller and cheaper designs that can scale faster is all the more important. A true nuclear renaissance can't happen overnight. And it won't happen so long as large and expensive light-water reactors remain our only option. But in the end, there is no credible path to mitigating climate change without a massive global expansion of nuclear energy. If you care about climate change, nothing is more important **t**han developing the nuclear technologies we will need to get that job done.

# a/t: clean tech

**No clean tech investment now**

**Loki 9-19**, Reynard, Justmeans staff writer for Sustainable Finance and Corporate Social Responsibility [“With Uncertain Financial Future, Cloudy Skies Ahead for American Cleantech,” 9-19, http://www.justmeans.com/With-Uncertain-Financial-Future-Cloudy-Skies-Ahead-for-American-Cleantech/56050.html]

Looking at 2011 VC investment figures, it seems like the cleantech industry in the United States is doing just fine. According to the Cleantech Group, a market intelligence advisory group based in San Francisco that has been tracking cleantech investments for the past decade, 2011 is the first year that saw more than $2 billion in cleantech venture investment in all four quarters. 4Q11 saw an impressive $2.21 billion in cleantech VC investments.[1] But if you take a closer—and wider—view, the bigger story isn't all that great. For one thing, the numbers for seed-stage deals were flat as investor focus turned to re-investing in firms already in their portfolios, firms that needed later-stage growth capital. In dollar terms, the news for early-stage startups across all industries is even worse. In 2011, VCs invested just $919 million in seed capital in 396 companies, a decrease of almost 50 percent from the previous year. In fact, seed-stage deals were the only stage of VC funding in 2011 to experience a decrease in average size. On the other side, late-stage VC investments in 2011 experienced a 37 percent increase.[2] TROUBLED TIMES FOR CLEANTECH VC That change in focus is part of a worrisome trend: According to Third Way, a Washington DC-based think tank, there were twice as many late-stage deals than early-stage deals in the cleantech sector in 2010—the first time that late-stage financing overtook early-stage development since 1999.[3] The trend has sounded alarm bells about the state of cleantech innovation in the United States: If VCs are targeting re-investments in portfolio companies, where does that leave innovative start-ups in dire need of financing? One concern is that without VC interest in committing seed money to new ideas, America's start-ups will look overseas for funding, leaving the nation in a cleantech innovation drag. For investors, the move away from start-up financing towards companies that are closer to turning a profit is understandable, particularly considering the nation's uncertain economic state. Untested ideas, though they may have merit, are left to the wayside. "Cleantech hasn't been a failure," noted Daniel Yates, CEO of Opower, a customer engagement platform for the utility industry. "It's VC investment in cleantech that has been troubled."[4] The Valley Of Death: only Uncle Sam can help build the bridge to clean energy The answer, according to some analysts, isn't to stimulate the VC industry, but to look to Uncle Sam. Indeed, over the past few years, the federal government's investment in cleantech has dwarfed that of venture capitalists. Between 2009 and 2014, Washington will have spent more than $150 billion in cleantech—more than three times the amount spent during the previous five-year period.[5] But, according to researchers from the Brookings Institution, the World Resources Institute and the Breakthrough Institute, in the excellent 2012 report Beyond Boom and Bust: Putting Clean Tech on a Path to Subsidy Independence, "To ensure a fully competitive energy market, the federal government must also do more to speed the demonstration and commercialization of new advanced energy technologies." The authors—Jesse Jenkins, Director of Energy and Climate Policy, Breakthrough Institute; Mark Muro, Senior Fellow, Metropolitan Policy Program, Brookings Institution; Ted Nordhaus and Michael Shellenberger, Cofounders, Breakthrough Institute; Letha Tawney, Senior Associate, World Resources Institute; and Alex Trembath, Policy Associate, Breakthrough Institute—note that "private sector financing is typically insufficient to move new energy innovations from early-stage laboratory research on to proof-of-concept prototype and then to full commercial scale."[6] They cite two financing gaps that they say "kill off too many promising new technologies before they have a chance to develop." One is known as the "technological valley of death," in which investors are hesitant to invest in early-stage R&D, hampering a start-up's ability to develop breakthrough concepts into marketable products. The other is the "commercialization valley of death," when young firms cannot find financing to take them from the pilot or demonstration phase of their product's tech development cycle to full commercial readiness.[7] "To avoid locking America's entrepreneurs and innovators out of energy markets, Congress should implement new policies to navigate the clean energy valleys of death," the authors recommend. "Without such policies, conventional fossil energy technologies are effectively insulated from new challengers, preventing a fully competitive US energy market."[8] THE WELL IS RUNNING DRY: FEDERAL CLEAN ENERGY INVESTMENT TO ENTER STEEP DECLINE The problem, however, is that federal cleantech funding, as described by The New York Times editorial board, "is about to drop off a cliff."[9] The reason for this is simple: The clean energy incentives and subsidies provided by President Obama's 2009 economic stimulus bill—amounting to $65 billion, including loan guarantees for wind and solar power—will largely be dismantled by 2014. To make matters worse, other longer-standing subsidies, like the mission-critical Production Tax Credit (PTC), are expiring.[10] For the cleantech industry, the numbers are hard to swallow. By 2014, annual federal cleantech spending is set to decline 75 percent to $11 billion (the high, in 2009, was $44.3 billion). In addition, 70 percent of all federal clean energy policies that were active in 2009 are set to expire at the end of 2014.[11] There's also the effect that the expiries will have on jobs. According to a Brookings Institute report, Obama's stimulus package was the cause of an 8.3-percent increase in jobs in the renewable energy sector, an impressive figure especially considering it happened at the height (or rather, depth) of the recession.[12] The thought of renewing such incentives is a bit pie-in-the-sky. Obama's stimulus bill was passed when Democrats controlled both houses of Congress. While the clean energy-friendly side of the aisle still controls the Senate, "the Republican wrecking crew in the House," as The New York Times notes, "remains generally hostile to programs that threaten the hegemony of the oil and gas interests."[13] DRILL, BABY, DRILL: THE GOP WILL KILL CLEAN ENERGY The House, for example, recently defeated an amendment proposed by Rep. Ed Markey (D-Mass.) to extend the wind energy PTC, mostly along party lines. Many analysts say the loss of the PTC is a significant blow to America's wind sector.[14][15] "There's such uncertainty in the market right now," said Laura Arnold, who sits on the board of directors of the Indiana Renewable Energy Association. "Uncertainty is not a positive stimulus for the growth of the industry…It's not completely over, but it's going to be on life support until we have another policy in its place to give the right inducement to the industry."[16] And if Mitt Romney wins the presidency, more dark days for the nation's cleantech sector are certain. The GOP hopeful's recently unveiled energy plan calls for opening up oil and gas development along the Atlantic Coast and—much to the chagrin of environmentalists and conservationists—the Arctic National Wildlife Refuge (ANWR), while ending much-needed subsidies for wind and solar.[17]

**Squo won’t solve warming – the plan is key**

Loudermilk ’11 (Micah K. Loudermilk, Contributor Micah J. Loudermilk is a Research Associate for the Energy & Environmental Security Policy program with the Institute for National Strategic Studies at National Defense University, contracted through ASE Inc, “Small Nuclear Reactors and US Energy Security: Concepts, Capabilities, and Costs”, <http://www.ensec.org/index.php?option=com_content&view=article&id=314:small-nuclear-reactors-and-us-energy-security-concepts-capabilities-and-costs&catid=116:content0411&Itemid=375>, May 31, 2011, LEQ)

Economies of Scale Reversed? Safety aside, one of the biggest issues associated with reactor construction is their enormous costs—often approaching up to $10 billion apiece. The outlay costs associated with building new reactors are so astronomical that few companies can afford the capital required to finance them. Additionally, during the construction of new reactors, a multi-year process, utilities face “single-shaft risk”—forced to tie up billions of dollars in a single plant with no return on investment until it is complete and operational. When this is coupled with the risks and difficulties classically associated with reactor construction, the resulting environment is not conducive to the sponsorship of new plants. Conventional wisdom says that SMRs cannot be cost-competitive with large reactors due to the substantial economies of scale loss transitioning down from gigawatt-sized reactors to ones producing between 25MW and 300 MW, but, a closer examination may result in a different picture. To begin with, one of the primary benefits of SMRs is their modularity. Whereas conventional reactors are all custom-designed projects and subsequently often face massive cost overruns, SMRs are factory-constructed—in half the time of a large reactor—making outlay costs largely fixed. Moreover, due to their scalability, SMRs at a multi-unit site can come online as installed, rather than needing to wait for completion of the entire project, bringing a faster return on invested capital and allowing for capacity additions as demand increases over time. Other indirect cost-saving measures further increase the fiscal viability of small nuclear reactors. Due to the immense power output of conventional reactors, they also require special high-power transmission lines. In contrast, small reactor output is low enough to use existing transmission lines without overloading them. This allows for small reactors to serve as “drop-in” replacements at existing old fossil fuel-based power plants, while utilizing the transmission lines, steam turbines, and other infrastructure already in place. In fact, the Tennessee Valley Authority (TVA) hopes to acquire two Babcock & Wilcox small reactors for use in this manner—perhaps precipitating a movement whereby numerous fossil fuel plants could be converted. Lastly, and often ignored, is the ability of small reactors to bring a secure energy supply to locations detached from the grid. Small communities across Canada, Alaska, and other places have expressed immense interest in this opportunity. Additionally, the incorporation of small reactors may be put to productive use in energy-intensive operations including the chemical and plastics industries, oil refineries, and shale gas extraction. Doing so, especially in the fossil fuels industry would free up the immense amounts of oil and gas currently burned in the extraction and refining process. All told, small reactors possess numerous direct and indirect cost benefits which may alter thinking on the monetary competitiveness of the technology. Nuclear vs. Alternatives: a realistic picture When discussing the energy security contributions offered by small nuclear reactors, it is not enough to simply compare them with existing nuclear technology, but also to examine how they measure up against other electricity generation alternatives—renewable energy technologies and fossil fuels. Coal, natural gas, and oil currently account for 45%, 23% and 1% respectively of US electricity generation sources. Hydroelectric power accounts for 7%, and other renewable power sources for 4%. These ratios are critical to remember because idealistic visions of providing for US energy security are not as useful as realistic ones balancing the role played by fossil fuels, nuclear power, and renewable energy sources. Limitations of renewables Renewable energy technologies have made great strides forward during the last decade. In an increasingly carbon emissions and greenhouse gas (GHG) aware global commons, the appeal of solar, wind, and other alternative energy sources is strong, and many countries are moving to increase their renewable electricity generation. However, despite massive expansion on this front, renewable sources struggle to keep pace with increasing demand, to say nothing of decreasing the amount of energy obtained from other sources. The continual problem with solar and wind power is that, lacking efficient energy storage mechanisms, it is difficult to contribute to baseload power demands. Due to the intermittent nature of their energy production, which often does not line up with peak demand usage, electricity grids can only handle a limited amount of renewable energy sources—a situation which Germany is now encountering. Simply put, nuclear power provides virtually carbon-free baseload power generation, and renewable options are unable to replicate this, especially not on the scale required by expanding global energy demands. Small nuclear reactors, however, like renewable sources, can provide enhanced, distributed, and localized power generation. As the US moves towards embracing smart grid technologies, power production at this level becomes a critical piece of the puzzle. Especially since renewable sources, due to sprawl, are of limited utility near crowded population centers, small reactors may in fact prove instrumental to enabling the smart grid to become a reality. Pursuing a carbon-free world Realistically speaking, a world without nuclear power is not a world full of increased renewable usage, but rather, of fossil fuels instead. The 2007 Japanese Kashiwazaki-Kariwa nuclear outage is an excellent example of this, as is Germany’s post-Fukushima decision to shutter its nuclear plants, which, despite immense development of renewable options, will result in a heavier reliance on coal-based power as its reactors are retired, leading to a 4% increase in annual carbon emissions. On the global level, without nuclear power, carbon dioxide emissions from electricity generation would rise nearly 20% from nine to eleven billion tons per year. When examined in conjunction with the fact that an estimated 300,000 people per year die as a result of energy-based pollutants, the appeal of nuclear power expansion grows further. As the world copes simultaneously with burgeoning power demand and the need for clean energy, nuclear power remains the one consistently viable option on the table. With this in mind, it becomes even more imperative to make nuclear energy as safe as possible, as quickly as possible—a capacity which SMRs can fill with their high degree of safety and security. Additionally, due to their modular nature, SMRs can be quickly constructed and deployed widely. While this is not to say that small reactors should supplant large ones, the US would benefit from diversification and expansion of the nation’s nuclear energy portfolio. Path forward: Department of Defense as first-mover Problematically, despite the immense energy security benefits that would accompany the wide-scale adoption of small modular reactors in the US, with a difficult regulatory environment, anti-nuclear lobbying groups, skeptical public opinion, and of course the recent Fukushima accident, the nuclear industry faces a tough road in the battle for new reactors. While President Obama and Energy Secretary Chu have demonstrated support for nuclear advancement on the SMR front, progress will prove difficult. However, a potential route exists by which small reactors may more easily become a reality: the US military. The US Navy has successfully managed, without accident, over 500 small reactors on-board its ships and submarines throughout 50 years of nuclear operations. At the same time, serious concern exists, highlighted by the Defense Science Board Task Force in 2008, that US military bases are tied to, and almost entirely dependent upon, the fragile civilian electrical grid for 99% of its electricity consumption. To protect military bases’ power supplies and the nation’s military assets housed on these domestic installations, the Board recommended a strategy of “islanding” the energy supplies for military installations, thus ensuring their security and availability in a crisis or conflict that disrupts the nation’s grid or energy supplies. DOD has sought to achieve this through decreased energy consumption and renewable technologies placed on bases, but these endeavors will not go nearly far enough in achieving the department’s objectives. However, by placing small reactors on domestic US military bases, DOD could solve its own energy security quandary—providing assured supplies of secure and constant energy both to bases and possibly the surrounding civilian areas as well. Concerns over reactor safety and security are alleviated by the security already present on installations and the military’s long history of successfully operating nuclear reactors without incident. Unlike reactors on-board ships, small reactors housed on domestic bases would undoubtedly be subject to Nuclear Regulatory Commission (NRC) regulation and certification, however, with strong military backing, adoption of the reactors may prove significantly easier than would otherwise be possible. Additionally, as the reactors become integrated on military facilities, general fears over the use and expansion of nuclear power will ease, creating inroads for widespread adoption of the technology at the private utility level. Finally, and perhaps most importantly, action by DOD as a “first mover” on small reactor technology will preserve America’s badly struggling and nearly extinct nuclear energy industry. The US possesses a wealth of knowledge and technological expertise on SMRs and has an opportunity to take a leading role in its adoption worldwide. With the domestic nuclear industry largely dormant for three decades, the US is at risk of losing its position as the global leader in the international nuclear energy market. If the current trend continues, the US will reach a point in the future where it is forced to import nuclear technologies from other countries—a point echoed by Secretary Chu in his push for nuclear power expansion. Action by the military to install reactors on domestic bases will guarantee the short-term survival of the US nuclear industry and will work to solidify long-term support for nuclear energy. Conclusions In the end, small modular reactors present a viable path forward for both the expansion of nuclear power in the US and also for enhanced US energy security. Offering highly safe, secure, and proliferation-resistant designs, SMRs have the potential to bring carbon-free baseload distributed power across the United States. Small reactors measure up with, and even exceed, large nuclear reactors on questions of safety and possibly on the financial (cost) front as well. SMRs carry many of the benefits of both large-scale nuclear energy generation and renewable energy technologies. At the same time, they can reduce US dependence on fossil fuels for electricity production—moving the US ahead on carbon dioxide and GHG reduction goals and setting a global example. While domestic hurdles within the nuclear regulatory environment domestically have proven nearly impossible to overcome since Three Mile Island, military adoption of small reactors on its bases would provide energy security for the nation’s military forces and may create the inroads necessary to advance the technology broadly and eventually lead to their wide-scale adoption.

**Clean tech unsustainable**

**Pappagallo 12**, Linda studying a Masters in International Affairs with a concentration in Energy and the Environment in New York [“Rare Earth Metals Limits Clean Technology’s Future” August 5th, http://www.greenprophet.com/2012/08/rare-earth-metal-peak/]

As the world moves toward greater use of zero- carbon energy sources, the supply of certain key metals needed for such clean-energy technologies may dry up, inflating per unit costs and driving the renewable energy market out of business. We’ve talked about peak phosphorus for food; now consider that rare earth metals like neodymium which are used in magnets to help drive wind energy turbines, and dysprosium needed for electric car performance are becoming less available on the planet. Until the 1980s, the most powerful magnets available were those made from an alloy containing samarium and cobalt. But mining and processing those metals presented challenges: samarium, one of 17 so-called “rare earth elements”, was costly to refine, and most cobalt came from mines in unstable regions of Africa. In 1982, researchers at General Motors developed a magnet based on neodymium, also a rare earth metal but more abundant than samarium, and at the time, it was cheaper. When combined with iron and boron, both readily available elements, it produced very strong magnets. Nowadays wind turbines, one of the fastest-growing sources of emissions-free electricity, rely on neodymium magnets. In the electric drive motor of a hybrid car neodymium-based magnets are essential. Imagine that one kilogram of neodymium can deliver 80 horsepower, enough to move a 3,000-pound vehicle like the Toyota Prius. When the second rare earth metal dysprosium is added to the alloy, performance at high temperatures is preserved. Soaring Demand for Rare Earth Metals These two metals have exceptional magnetic properties that make them especially well-suited to use in highly efficient, lightweight motors and batteries. However, according to a new MIT study led by a team of researchers at MIT’s Materials Systems Laboratory and co-authored by three researchers from Ford Motor Company, the supply of both elements neodymium and dysprosium — currently imported almost exclusively from China — could face significant shortages in coming years. The study looked at ten so-called “rare earth metals,” a group of 17 elements that have similar properties and which have some uses in high-tech equipment, in many cases in technology related to low-carbon energy. Of those ten, two are likely to face serious supply challenges in the coming years. Neodymium and dysprosium are not the most widely used rare earth elements, but they are the ones expected to see the biggest “pinch” in supplies, due to projected rapid growth in demand for high-performance permanent magnets. The biggest challenge is likely to be for dysprosium: Demand could increase by 2,600 percent over the next 25 years while Neodymium demand could increase by as much as 700%. A single large wind turbine (rated at about 3.5 megawatts) typically contains 600 kilograms of rare earth metals. A conventional car uses approximately a half kilogram of rare earth materials while an electric car uses nearly ten times as much. The picture starts to become clear, clean technology requires a lot of rare elements, and relying on clean technology is what the whole world is striving for – including the Middle East and North Africa. Rare earth metals will become the next political obsession.

# a/t: oil

**Nuclear doesn’t displace oil**

IM No date

International Mundi, “United States - electricity production from oil sources

Electricity production from oil sources (kWh),” <http://www.indexmundi.com/facts/united-states/electricity-production-from-oil-sources>, AM\*Cites the IEA

Electricity production from oil sources (% of total) in United States was 1.11 as of 2010. Its highest value over the past 50 years was 17.17 in 1977, while its lowest value was 1.11 in 2010. Definition: Sources of electricity refer to the inputs used to generate electricity. Oil refers to crude oil and petroleum products. Source: International Energy Agency (IEA Statistics © OECD/IEA, http://www.iea.org/stats/index.asp), Energy Statistics and Balances of Non-OECD Countries, Energy Statistics of OECD Countries, and Energy Balances of OECD Countries.

**DoD’s even smaller**

**Bartis 11**

James Bartis, PhD chemical physics – MIT, senior policy researcher – RAND, 2012,Promoting International Energy Security: Volume 1, Understanding Potential Air Force Roles, http://www.rand.org/content/dam/rand/pubs/technical\_reports/2012/RAND\_TR1144z1.pdf

As fuel purchasers, neither the Air Force nor DoD has enough power to influence the world oil market. **Their fuel purchases are simply too small**. But as part of the armed forces of the United States, the Air Force plays an important and productive role in the world oil market. The armed services are the backbone of the U.S. national security policy that assures access to the energy supplies of the Persian Gulf and the stability and security of key friendly states in the region. Moreover, the U.S. Navy’s global presence assures freedom of passage in the sea- lanes that are crucial to the international trade in petroleum and natural gas.

**Oil dependence inev**

**Wagner 11 –** White House Correspondent for Politics Daily, cultural correspondent for the Center for American Progress (Alex, August 11, "Apple vs. Exxon: The Battle for America's Most Valuable Company Isn't Over Yet," <http://www.huffingtonpost.com/2011/08/11/apple-vs-exxon-the-battle_n_924764.html?ir=Canada%20Lifestyle&utm_medium=referral&utm_source=pulsenews>)

As fossil fuels become more limited in supply, energy companies, including Exxon, are using methods such as [ultra-deep water drilling](http://videos.howstuffworks.com/medialink/14668-ultra-deep-water-oil-drilling-video.htm) and [sub-salt drilling](http://www.gomr.boemre.gov/homepg/offshore/gulfocs/subsalt/subsalt.html) to find new reserves, according to [Frank A. Verrastro](http://csis.org/expert/frank-verrastro), the director of the energy and national security program at the Center for Strategic and International Studies.

"You've also started to see a movement in shale gas," he said. "A lot of these oil companies have seen the writing on the wall that the world is changing, so they need to adjust their strategy."

Despite the pressures of climate change, the global economy's dependence on oil isn't likely to wane anytime soon, Green said.

"There is the **inescapable reality** that even if we didn’t use oil for energy, it is the basis for our entire chemistry," said Green. "From fertilizer to the materials used to make, well, **everything,** our chemistry is petrochemistry. There is nothing on the horizon that is going to displace that. There's no magic gizmo that does that for you -- and there's no evidence that there's anything around the corner that will."

a/t: middle east

**no impact**

**Ferguson 06 –** Professor of History at Harvard University, Senior Research Fellow of Jesus College, Oxford, and Senior Fellow of the Hoover Institution, Stanford(Niall, LA Times, July 24)

Could today's quarrel between Israelis and Hezbollah over Lebanon produce World War III? That's what Republican Newt Gingrich, the former speaker of the House, called it last week, echoing earlier fighting talk by Dan Gillerman, Israel's ambassador to the United Nations. Such language can — for now, at least — safely be dismissed as hyperbole. This crisis is not going to trigger another world war. Indeed, I do not expect it to produce even another Middle East war worthy of comparison with those of June 1967 or October 1973. In 1967, Israel fought four of its Arab neighbors — Egypt, Syria, Jordan and Iraq. In 1973, Egypt and Syria attacked Israel. Such combinations are very hard to imagine today. Nor does it seem likely that Syria and Iran will escalate their involvement in the crisis beyond continuing their support for Hezbollah. Neither is in a position to risk a full-scale military confrontation with Israel, given the risk that this might precipitate an American military reaction. Crucially, Washington's consistent support for Israel is not matched by any great power support for Israel's neighbors. During the Cold War, by contrast, the risk was that a Middle East war could spill over into a superpower conflict. Henry Kissinger, secretary of State in the twilight of the Nixon presidency, first heard the news of an Arab-Israeli war at 6:15 a.m. on Oct. 6, 1973. Half an hour later, he was on the phone to the Soviet ambassador in Washington, Anatoly Dobrynin. Two weeks later, Kissinger flew to Moscow to meet the Soviet leader, Leonid Brezhnev. The stakes were high indeed. At one point during the 1973 crisis, as Brezhnev vainly tried to resist Kissinger's efforts to squeeze him out of the diplomatic loop, the White House issued DEFCON 3, putting American strategic nuclear forces on high alert. It is hard to imagine anything like that today. In any case, this war may soon be over. Most wars Israel has fought have been short, lasting a matter of days or weeks (six days in '67, three weeks in '73). Some Israeli sources say this one could be finished in a matter of days. That, at any rate, is clearly the assumption being made in Washington.

Secretary of State Condoleezza Rice has been in no hurry to get to the scene (she is due to arrive in Israel today). Nor has she scheduled any visits to Arab capitals. Compare this leisurely response to the frenetic shuttle diplomacy of the Kissinger era. While striving to secure a settlement between Israel and Syria, Rice's predecessor traveled 24,230 miles in just 34 days.

And yet there are other forms that an escalation of the Middle East conflict could conceivably take. A war between states may not be in the cards, much less a superpower conflict. What we must fear, however, is a spate of civil wars -- to be precise, ethnic conflicts -- across the region.

a/t: russia impact

**Diversification is the only way to solve their economy**

Rozhnov ’11 – Business Reporter, BBC (Rozhnov, Konstantin. “Will Russia ever reduce dependence on oil and gas exports?”. April 28, 2011. http://www.bbc.co.uk/news/business-13213340)

But even if oil prices remain high, it would be impossible for Russia to enjoy high oil revenues without investing heavily into new technologies.

The Russian Ministry of Natural Resources said in its report earlier this week that the **quality of the** country's remaining oil **reserves was declining**.

According to the ministry, heavy and viscous oil, which is difficult to extract, now **accounts for 70% of the** country's oil **reserves**, while lighter oil - which is of a higher quality - accounts for 70% of all extracted crude oil.

It means that even the oil and gas industry will suffer if the economy is not modernised.

"The question of modernisation is the question of turning Russia into a 21st Century country," says Mr Aleksashenko.

"Otherwise, Russia will continue being stuck somewhere between the 19th and 20th Centuries."

No impact to Russian economy

Blackwill, 09 – former associate dean of the Kennedy School of Government and Deputy Assistant to the President and Deputy National Security Advisor for Strategic Planning (Robert, RAND, “The Geopolitical Consequences of the World Economic Recession—A Caution”, http://www.rand.org/pubs/occasional\_papers/2009/RAND\_OP275.pdf, WEA)

Now on to Russia. Again, five years from today. Did the global recession and Russia’s present serious economic problems substantially modify Russian foreign policy? No. (President Obama is beginning his early July visit to Moscow as this paper goes to press; nothing fundamental will result from that visit). Did it produce a serious weakening of Vladimir Putin’s power and authority in Russia? No, as recent polls in Russia make clear. Did it reduce Russian worries and capacities to oppose NATO enlargement and defense measures eastward? No. Did it affect Russia’s willingness to accept much tougher sanctions against Iran? No. Russian Foreign Minister Lavrov has said there is no evidence that Iran intends to make a nuclear weapon.25 In sum, Russian foreign policy is today on a steady, consistent path that can be characterized as follows: to resurrect Russia’s standing as a great power; to reestablish Russian primary influence over the space of the former Soviet Union; to resist Western eff orts to encroach on the space of the former Soviet Union; to revive Russia’s military might and power projection; to extend the reach of Russian diplomacy in Europe, Asia, and beyond; and to oppose American global primacy. For Moscow, these foreign policy first principles are here to stay, as they have existed in Russia for centuries. 26 None of these enduring objectives of Russian foreign policy are likely to be changed in any serious way by the economic crisis.

a/t: iran impact

**SMRs solve iran and North Korean prolif**

**Goodby and Heiskanen 12**¸ James, former arms control negotiator and a Hoover Institution Fellow, Markku, Associate and Program Director of The Asia Institute at the Kyung Hee University in Seoul [“The Seoul Nuclear Security Summit: New Thinking in Northeast Asia?” March 20th, <http://nautilus.org/napsnet/napsnet-policy-forum/the-seoul-nuclear-security-summit-new-thinking-in-northeast-asia/>]

The nuclear crises in the Middle East and Northeast Asia and the stalled promise of a nuclear renaissance in civil nuclear power could all be solved by a more rational approach to the generation of electric power. Although it will take years before the current, outdated system is replaced, the Seoul meeting could provide a political impetus. The new system would rest on three legs: small modular reactors (“mini-reactors”), internationally managed nuclear fuel services, and increasing reliance on the distributed (local) generation of electricity. After the disaster in Fukushima, there has been an understandable retreat from plans for large-scale reactors, with their inevitable safety issues. A vivid example of this reaction is found in Germany, which has cancelled its plans to increase the generation of electricity from nuclear reactors even though they are cleaner and more dependable than most other sources currently available. Vulnerabilities and inefficiencies of long-distance transmission lines point to a paradigm for generation and distribution of electric power that is more local – connected to national grids, to be sure, but able to operate independently of them. This is an ideal situation for mini-reactors, which are safer and less prone to encourage the spread of nuclear weapons. Internationally managed nuclear fuel services already exist and the security of supply can be assured by policies that foster more fuel service centers in Asia and elsewhere, including in the United States. These factors would enable suppliers of mini-reactors to expand their business to nations like North Korea and Iran under IAEA safeguards. The relevance of this energy paradigm to resolving the issues in North Korea and Iran is evident: both nations could develop civil nuclear programs with assured supplies of nuclear fuel from multiple internationally managed fuel service centers in Russia, China, and Western Europe while avoiding the ambiguity of nationally operated plutonium reprocessing and uranium enrichment. Reliance on distributed generation of electricity would be more efficient and less prone to blackouts. And the presence of a level playing field should be apparent from the fact that similar arrangements would be the 21st-century way of generating electricity from nuclear energy in the developed economies as well as in energy-starved economies such as India and China.

**Nuclear war**

**Hayes & Hamel-Green ’10** [\*Victoria University AND \*\*Executive Director of the Nautilus Institute (Peter and Michael, “-“The Path Not Taken, the Way Still Open: Denuclearizing the Korean Peninsula and Northeast Asia”, 1/5, http://www.nautilus.org/fora/security/10001HayesHamalGreen.pdf]

The consequences of failing to address the proliferation threat posed by the North Korea developments, and related political and economic issues, are serious, not only for the Northeast Asian region but for the whole international community. At worst, there is the possibility of nuclear attack1, whether by intention, miscalculation, or merely accident, leading to the resumption of Korean War hostilities. On the Korean Peninsula itself, key population centres are well within short or medium range missiles. The whole of Japan is likely to come within North Korean missile range. Pyongyang has a population of over 2 million, Seoul (close to the North Korean border) 11 million, and Tokyo over 20 million. Even a limited nuclear exchange would result in a holocaust of unprecedented proportions. But the catastrophe within the region would not be the only outcome. New research indicates that even a limited nuclear war in the region would rearrange our global climate far more quickly than global warming. Westberg draws attention to new studies modelling the effects of even a limited nuclear exchange involving approximately 100 Hiroshima-sized 15 kt bombs2 (by comparison it should be noted that the United States currently deploys warheads in the range 100 to 477 kt, that is, individual warheads equivalent in yield to a range of 6 to 32 Hiroshimas).The studies indicate that the soot from the fires produced would lead to a decrease in global temperature by 1.25 degrees Celsius for a period of 6-8 years.3 In Westberg’s view: That is not global winter, but the nuclear darkness will cause a deeper drop in temperature than at any time during the last 1000 years. The temperature over the continents would decrease substantially more than the global average. A decrease in rainfall over the continents would also follow...The period of nuclear darkness will cause much greater decrease in grain production than 5% and it will continue for many years...hundreds of millions of people will die from hunger...To make matters even worse, such amounts of smoke injected into the stratosphere would cause a huge reduction in the Earth’s protective ozone.4 These, of course, are not the only consequences. Reactors might also be targeted, causing further mayhem and downwind radiation effects, superimposed on a smoking, radiating ruin left by nuclear next-use. Millions of refugees would flee the affected regions. The direct impacts, and the follow-on impacts on the global economy via ecological and food insecurity, could make the present global financial crisis pale by comparison. How the great powers, especially the nuclear weapons states respond to such a crisis, and in particular, whether nuclear weapons are used in response to nuclear first-use, could make or break the global non proliferation and disarmament regimes. There could be many unanticipated impacts on regional and global security relationships5, with subsequent nuclear breakout and geopolitical turbulence, including possible loss-of-control over fissile material or warheads in the chaos of nuclear war, and aftermath chain-reaction affects involving other potential proliferant states. The Korean nuclear proliferation issue is not just a regional threat but a global one that warrants priority consideration from the international community

**Multiple barriers to Iran heg**

**Savyon 11**. [A, director – Iranian Media Project @ Middle East Media Research Institute, 7/4/’11 “Iran's Defeat in the Bahrain Crisis: A Seminal Event in the Sunni-Shi'ite Conflict,” http://www.memri.org/report/en/0/0/0/0/0/0/5424.htm#\_ednref6

Despite its image as a looming superpower, which revolutionary Iran has sought for years to cultivate, its actual policy reveals a deep recognition of its weakness as a representative of the Shi'ites, who constitute a 10% minority in a Sunni Muslim region. Historically persecuted over centuries, the Shi'ites developed various means of survival, including taqiya – the Shi'ite principle of caution, as expressed in willingness to hide one's Shi'ite affiliation in order to survive under a hostile Sunni rule – and passivity, reflected in the use of diplomacy alongside indirect intimidation, terrorism, etc. The ideological change pioneered by the founder of the Islamic Revolution in Iran, Ayatollah Ruhollah Khomeini – who transformed the passive perception characteristic of the of the Shi'a (which was based on the legend of the martyrdom of Hussein at the Battle of Karbala) into an active perception of martyrdom (shahada)[26] – is not being carried out by Iran. Tehran is refraining from sending Iranian nationals to carry out martyrdom operations, despite its years-long glorification of this principle. It is also not sending Iranians to Gaza, either on aid missions or to carry out suicide attacks – and this despite the fact that regime-sponsored organizations are recruiting volunteers for such efforts. Moreover, it appears that the Shi'ite regime in Iran is utilizing the legend of Hussein's martyrdom solely for propaganda purposes, in order to glorify its own might and intimidate the Sunni and Western world. Such intimidation is in keeping with Shi'ite tradition, as a way to conceal Tehran's unwillingness to take overt military action against external challenges. Conclusion Tehran's defeat in the Bahrain crisis reflects characteristic Shi'ite restraint, stemming from recognition of its own weakness in the face of the vast Sunni majority. The decade during which Iran successfully expanded its strength and power exponentially via threats and creating an image of superpower military strength has collapsed in the Bahrain crisis; Iran is now revealed as a paper tiger that will refrain from any violent conflict. When it came to the crunch, it became clear that the most that Iran could do was threaten to use terrorism or to subvert the Shi'ite citizens of other countries – in keeping with customary Shi'ite behavior – and these threats were not even implemented. It can be assumed that the Sunni camp, headed by Saudi Arabia, is fully aware of the political and military significance of Iran's weakness and its unwillingness to initiate face-to-face conflict. This will have ramifications on both the regional and the global levels. In addition to having its weakness exposed by the Bahrain situation, Tehran has also taken several further hits to its prestige and geopolitical status. These include: the popular uprisings in Syria against the regime of Syrian President Bashar Al-Assad, weakening the Tehran-Damascus axis; post-revolutionary Egypt's refusal to renew relations with Iran; and the fact that the E.U. was capable of uniting and leading a military attack against the regime of Libyan leader Mu'ammar Al-Qadhafi as well as its refusal to renew the nuclear negotiations with Tehran based on Iran's demands. All this, added to the serious internal rift between Iranian Supreme Leader Ali Khamenei and his long-time ally Iranian President Mahmoud Ahmadinejad, have today left the Iranian regime in clearly reduced circumstances.

**Iran isn’t a threat**

**Luttwak 7**. [Edward, senior associate – CSIS, professor – Georgetown and Berkeley, 5/26/’7 “The middle of nowhere,” Prospect Magazine]

Now the Mussolini syndrome is at work over Iran. All the symptoms are present, including tabulated lists of Iran’s warships, despite the fact that most are over 30 years old; of combat aircraft, many of which (F-4s, Mirages, F-5s, F-14s) have not flown in years for lack of spare parts; and of divisions and brigades that are so only in name. There are awed descriptions of the Pasdaran revolutionary guards, inevitably described as “elite,” who do indeed strut around as if they have won many a war, but who have actually fought only one—against Iraq, which they lost. As for Iran’s claim to have defeated Israel by Hizbullah proxy in last year’s affray, the publicity was excellent but the substance went the other way, with roughly 25 per cent of the best-trained men dead, which explains the tomb-like silence and immobility of the once rumbustious Hizbullah ever since the ceasefire. Then there is the new light cavalry of Iranian terrorism that is invoked to frighten us if all else fails. The usual middle east experts now explain that if we annoy the ayatollahs, they will unleash terrorists who will devastate our lives, even though 30 years of “death to America” invocations and vast sums spent on maintaining a special international terrorism department have produced only one major bombing in Saudi Arabia, in 1996, and two in the most permissive environment of Buenos Aires, in 1992 and 1994, along with some assassinations of exiles in Europe. It is true enough that if Iran’s nuclear installations are bombed in some overnight raid, there is likely to be some retaliation, but we live in fortunate times in which we have only the irritant of terrorism instead of world wars to worry about—and Iran’s added contribution is not likely to leave much of an impression. There may be good reasons for not attacking Iran’s nuclear sites—including the very slow and uncertain progress of its uranium enrichment effort—but its ability to strike back is not one of them. Even the seemingly fragile tanker traffic down the Gulf and through the straits of Hormuz is not as vulnerable as it seems—Iran and Iraq have both tried to attack it many times without much success, and this time the US navy stands ready to destroy any airstrip or jetty from which attacks are launched. As for the claim that the “Iranians” are united in patriotic support for the nuclear programme, no such nationality even exists. Out of Iran’s population of 70m or so, 51 per cent are ethnically Persian, 24 per cent are Turks (“Azeris” is the regime’s term), with other minorities comprising the remaining quarter. Many of Iran’s 16-17m Turks are in revolt against Persian cultural imperialism; its 5-6m Kurds have started a serious insurgency; the Arab minority detonates bombs in Ahvaz; and Baluch tribesmen attack gendarmes and revolutionary guards. If some 40 per cent of the British population were engaged in separatist struggles of varying intensity, nobody would claim that it was firmly united around the London government. On top of this, many of the Persian majority oppose the theocratic regime, either because they have become post-Islamic in reaction to its many prohibitions, or because they are Sufis, whom the regime now persecutes almost as much as the small Baha’i minority. So let us have no more reports from Tehran stressing the country’s national unity. Persian nationalism is a minority position in a country where half the population is not even Persian. In our times, multinational states either decentralise or break up more or less violently; Iran is not decentralising, so its future seems highly predictable, while in the present not much cohesion under attack is to be expected.

**Turkey contains Iran**

**Akhlaghi 10**.[Reza, senior writer – Foreign Policy Association Blogs, 9/4, “Turkish Geopolitical Ascendancy and the Iranian Decline,” http://foreignpolicyblogs.com/2010/09/04/turkish-geopolitical-ascendancy-and-the-iranian-decline/]

With the global economy struggling to re-surface from a deep and self-inflicted recession, the international geo-political order is locked in a lengthy transformation for what appears to be a multi-polar world. In this new and yet-to-be-shaped global geo-political order, there are emerging economies that aim to leverage their rising economic power and turn them into geo-political and geo-energy assets. Turkey is one such power. Faced with a complex geo-political and energy environment in its region and an economy increasingly integrated into the global trade system, Turkey is executing on a newly developed, grand foreign policy doctrine. This doctrine is bent on harmonizing the country’s power axes with a new geo-politic and geo-energy environment in its region and beyond. The new emerging Turkish foreign policy and geo-strategic doctrine is putting Iran on the periphery and contributing to Tehran’s decline in its ability to exert leadership in the region. Equipped with a new foreign policy doctrine and a well-established private economic sector, Turkey is deeply cognizant of its emerging strategic advantages over Iran and will leverage these advantages by further strengthening its ties with the Muslim world and filling the void where Iran is seen as a destabilizing force. These efforts by Turkey are poised to effectively strip Iran of its ability to exert political and economic influence in the region.

**Regional cooperation solves**

**Hadar 11**. [Leon, foreign policy studies – Cato, 7/1 -- http://www.cato.org/pub\_display.php?pub\_id=13259]

To some extent, the recognition that the United States has lost some of its ability to determine strategic outcomes in the Middle East has already encouraged regional powers to reassess the wisdom of free riding on American power. Saudi Arabia, together with its partners in the Gulf Cooperation Council (GCC), has deployed troops to Bahrain to provide support to the regime and is heading the efforts to stabilize Yemen. Meanwhile, France, a major Mediterranean power, and Britain have played a leading role in the military operation in Libya to protect their interests in the region. Turkey has been asserting more forcefully its role as a regional power in multiple ways. Indeed, contrary to the warning proponents of U.S. military intervention typically express, the withdrawal of American troops from Iraq and Afghanistan would not necessarily lead to more chaos and bloodshed in those countries. Russia, India and Iran — which supported the Northern Alliance that helped Washintgon topple the Taliban — and Pakistan (which once backed the Taliban) all have close ties to various ethnic and tribal groups in that country and now have a common interest in stabilizing Afghanistan and containing the rivalries. A similar arrangement could be applied to Iraq where Turkey, Saudi Arabia and Iran share an interest in assisting their local allies and in restraining potential rivals — Shiites, Sunnis, Kurds and Turkmen — by preventing the sectarian tensions in Iraq from spilling into the rest of the region. Hence, Turkey has already been quite successful in stabilizing and developing economic ties with the autonomous Kurdish area of Iraq while containing irredentist Kurdish pressures in northern Iraq and southern Turkey and protecting the Turkmen minority. And Turkey, together with Saudi Arabia and Iran, has played a critical role toward forming a government in Baghdad that recognizes the interests of Shiites, Sunnis, and Kurds. The United States should take part in any negotiations leading to regional agreements on Afghanistan and Iraq, a process that could also become an opportunity to improve the relationship with Iran. Such an approach has the potential to demonstrate that regionalism, as opposed to American hegemonism, could be more beneficial to U.S. interests as well as to the governments and people of the Middle East and Central Asia.

a/t: terrorism

**no impact**

**Mearsheimer 11,**January, John J., Wendell Harrison Distinguished Service Professor of Political Science at the University of Chicago. He is on the Advisory Council of The National Interest, “Imperial by Design,”http://nationalinterest.org/article/imperial-by-design-4576?page=3,

The fact is that states have strong incentives to distrust terrorist groups, in part because they might turn on them someday, but also because countries cannot control what terrorist organizations do, and they may do something that gets their patrons into serious trouble. This is why there is hardly any chance that a rogue state will give a nuclear weapon to terrorists. That regime’s leaders could never be sure that they would not be blamed and punished for a terrorist group’s actions. Nor could they be certain that the United States or Israel would not incinerate them if either country merely suspected that they had provided terrorists with the ability to carry out a WMD attack. A nuclear handoff, therefore, is not a serious threat. When you get down to it, there is only a remote possibility that terrorists will get hold of an atomic bomb. The most likely way it would happen is if there were political chaos in a nuclear-armed state, and terrorists or their friends were able to take advantage of the ensuing confusion to snatch a loose nuclear weapon. But even then, there are additional obstacles to overcome: some countries keep their weapons disassembled, detonating one is not easy and it would be difficult to transport the device without being detected. Moreover, other countries would have powerful incentives to work with Washington to find the weapon before it could be used. The obvious implication is that we should work with other states to improve nuclear security, so as to make this slim possibility even more unlikely. Finally, the ability of terrorists to strike the American homeland has been blown out of all proportion. In the nine years since 9/11, government officials and terrorist experts have issued countless warnings that another major attack on American soil is probable—even imminent. But this is simply not the case.3 The only attempts we have seen are a few failed solo attacks by individuals with links to al-Qaeda like the “shoe bomber,” who attempted to blow up an American Airlines flight from Paris to Miami in December 2001, and the “underwear bomber,” who tried to blow up a Northwest Airlines flight from Amsterdam to Detroit in December 2009. So, we do have a terrorism problem, but it is hardly an existential threat. In fact, it is a minor threat. Perhaps the scope of the challenge is best captured by Ohio State political scientist John Mueller’s telling comment that “the number of Americans killed by international terrorism since the late 1960s . . . is about the same as the number killed over the same period by lightning, or by accident-causing deer, or by severe allergic reactions to peanuts.”

# 2ac t

**we meet – we give the industry money and tax credits**

**Epa.gov 12** [“Solar Power Purchase Agreements,” May 24th, <http://www.epa.gov/greenpower/buygp/solarpower.htm>]

A Solar Power Purchase Agreement (SPPA) is a financial arrangement in which a third-party developer owns, operates, and maintains the photovoltaic (PV) system, and a host customer agrees to site the system on its roof or elsewhere on its property and purchases the system’s electric output from the solar services provider for a predetermined period. This financial arrangement allows the host customer to receive stable, and sometimes lower cost electricity, while the solar services provider or another party acquires valuable financial benefits such as tax credits and income generated from the sale of electricity to the host customer.

**DoE says we’re T**

**Waxman 98 –** Solicitor General of the US (Seth, Brief for the United States in Opposition for the US Supreme Court case HARBERT/LUMMUS AGRIFUELS PROJECTS, ET AL., PETITIONERS v. UNITED STATES OF AMERICA, http://www.justice.gov/osg/briefs/1998/0responses/98-0697.resp.opp.pdf)

2 On November 15, 1986, Keefe was delegated “the authority, with respect to actions valued at $50 million or less, to approve, execute, enter into, modify, administer, closeout, terminate and take any other necessary and appropriate action (collectively, ‘Actions’) with respect to Financial Incentive awards.” Pet. App. 68, 111-112. Citing DOE Order No. 5700.5 (Jan. 12, 1981), the delegation defines “Financial Incentives” as the authorized financial incentive programs of DOE, “including direct loans, loan guarantees, purchase agreements, price supports, guaranteed market agreements and any others which may evolve.” The delegation proceeds to state, “[h]owever, a separate prior written approval of any such action must be given by or concurred in by Keefe to accompany the action.” The delegation also states that its exercise “shall be governed by the rules and regulations of [DOE] and policies and procedures prescribed by the Secretary or his delegate(s).” Pet. App. 111-113.

**Interpretation – incentives are the disbursement of public funds**

**Gielecki 1**, Mark, economist with the Energy Information Administration, Fred Mayes, Senior Technical Advisor for the coal, nuclear, and renewables program within the EIA, Lawrence Prete, retired from the EIA, [“Incentives, Mandates, and Government Programs for Promoting Renewable Energy,” February, <http://lobby.la.psu.edu/_107th/128_PURPA/Agency_Activities/EIA/Incentive_Mandates_and_Government.htm>]

Over the years, incentives and mandates for renewable energy have been used to advance different energy policies, such as ensuring energy security or promoting environmentally benign energy sources. Renewable energy has beneficial attributes, such as low emissions and replenishable energy supply, that are not fully reflected in the market price. Accordingly, governments have used a variety of programs to promote renewable energy resources, technologies, and renewable-based transportation fuels. (1) This paper discusses: (1) financial incentives and regulatory mandates used by Federal and State governments and Federal research and development (R&D), (2), (3) and (2) their effectiveness in promoting renewables. A financial incentive is defined in this report as providing one or more of the following benefits: A transfer of economic resources by the Government to the buyer or seller of a good or service that has the effect of reducing the price paid, or, increasing the price received, respectively; Reducing the cost of production of the good or service; or, Creating or expanding a market for producers. The intended effect of a financial incentive is to increase the production or consumption of the good or service over what it otherwise would have been without the incentive. Examples of financial incentives are: tax credits, production payments, trust funds, and low-cost loans. Research and development is included as a support program because its effect is to decrease cost, thus enhancing the commercial viability of the good(s) provided. (4)

**aff ground – they destroy nuclear affs which are the heart of the topic – outweighs because it’s a prerequisite to clash**

**Good is good enough – competing interpretations forces a race to the bottom and judge intervention – this is no less arbitrary than deciding limits are key**

# 2ac k

**McClean ‘1**

[David. Society for the Advancement of American Philosophy. “The Cultural Left and the Limits of Social Hope” [www.americanphilosophy.org/archives/2001%2520Conference/Discussion%2520papers/david\_mcclean.htm+foucault+habermas+slapped+cud&hl=en&gl=us&ct=clnk&cd=1](http://www.americanphilosophy.org/archives/2001%2520Conference/Discussion%2520papers/david_mcclean.htm+foucault+habermas+slapped+cud&hl=en&gl=us&ct=clnk&cd=1) 2001]

Yet for some reason, at least partially explicated in Richard Rorty's Achieving Our Country, a book that I think is long overdue, leftist critics continue to cite and refer to the eccentric and often a priori ruminations of people like those just mentioned, and a litany of others including Derrida, Deleuze, Lyotard, Jameson, and Lacan, who are to me hugely more irrelevant than Habermas in their narrative attempts to suggest policy prescriptions (when they actually do suggest them) aimed at curing the ills of homelessness, poverty, market greed, national belligerence and racism. I would like to suggest that it is time for American social critics who are enamored with this group, those who actually want to be relevant, to recognize that they have a disease, and a disease regarding which I myself must remember to stay faithful to my own twelve step program of recovery. The disease is the need for elaborate theoretical "remedies" wrapped in neological and multi-syllabic jargon. These elaborate theoretical remedies are more "interesting," to be sure, than the pragmatically settled questions about what shape democracy should take in various contexts, or whether private property should be protected by the state, or regarding our basic human nature (described, if not defined (heaven forbid!), in such statements as "We don't like to starve" and "We like to speak our minds without fear of death" and "We like to keep our children safe from poverty"). As Rorty puts it, "When one of today's academic leftists says that some topic has been 'inadequately theorized,' you can be pretty certain that he or she is going to drag in either philosophy of language, or Lacanian psychoanalysis, or some neo-Marxist version of economic determinism. . . . These futile attempts to philosophize one's way into political relevance are a symptom of what happens when a **Left retreats from activism and adopts a spectatorial approach to the problems of its country.** Disengagement from practice produces theoretical hallucinations"(italics mine).[(1)](E:\\WINDOWS\\Temporary Internet Files\\Content.IE5\\OTKXU3YH\\the city.htm" \l "N_1_) Or as John Dewey put it in his The Need for a Recovery of Philosophy, "I believe that philosophy in America will be lost between chewing a historical cud long since reduced to woody fiber, or an apologetics for lost causes, . . . . or a scholastic, schematic formalism, unless it can somehow bring to consciousness America's own needs and its own implicit principle of successful action." Those who suffer or have suffered from this disease Rorty refers to as the Cultural Left, which left is juxtaposed to the Political Left that Rorty prefers and prefers for good reason. Another attribute of the Cultural Left is that its members fancy themselves pure culture critics who view the successes of America and the West, rather than some of the barbarous methods for achieving those successes, as mostly evil, and who view anything like national pride as equally evil even when that pride is tempered with the knowledge and admission of the nation's shortcomings. In other words, the Cultural Left, in this country, too often dismiss American society as beyond reform and redemption. And Rorty correctly argues that this is a disastrous conclusion, i.e. disastrous for the Cultural Left. I think it may also be disastrous for our social hopes, as I will explain. Leftist American culture critics might put their considerable talents to better use if they bury some of their cynicism about America's social and political prospects and help forge public and political possibilities in a spirit of determination to, indeed, achieve our country - the country of Jefferson and King; the country of John Dewey and Malcom X; the country of Franklin Roosevelt and Bayard Rustin, and of the later George Wallace and the later Barry Goldwater. To invoke the words of King, and with reference to the American society, the time is always ripe to seize the opportunity to help create the "beloved community," one woven with the thread of agape into a conceptually single yet diverse tapestry that shoots for nothing less than a true intra-American cosmopolitan ethos, one wherein both same sex unions and faith-based initiatives will be able to be part of the same social reality, one wherein business interests and the university are not seen as belonging to two separate galaxies but as part of the same answer to the threat of social and ethical nihilism. We who fancy ourselves philosophers would do well to create from within ourselves and from within our ranks a new kind of public intellectual who has both a hungry theoretical mind and who is yet capable of seeing the need to move past high theory to other important questions that are less bedazzling and "interesting" but more important to the prospect of our flourishing - questions such as "How is it possible to develop a citizenry that cherishes a certain hexis, one which prizes the **character** of the Samaritan on the road to Jericho almost more than any other?" or "How can we square the political dogma that undergirds the fantasy of a missile defense system with the need to treat America as but one member in a community of nations under a "law of peoples?"The new public philosopher might seek to understand labor law and military and trade theory and doctrine as much as theories of surplus value; the logic of international markets and trade agreements as much as critiques of commodification, and the politics of complexity as much as the politics of power (all of which can still be done from our arm chairs.) This means going down deep into the guts of our quotidian social institutions, into the grimy pragmatic details where intellectuals are loathe to dwell but where the officers and bureaucrats of those institutions take difficult and often unpleasant, imperfect decisions that affect other peoples' lives, and it means making honest attempts to truly understand how those institutions actually function in the actual world before howling for their overthrow commences. This might help keep us from being slapped down in debates by true policy pros who actually know what they are talking about but who lack awareness of the dogmatic assumptions from which they proceed, and who have not yet found a good reason to listen to jargon-riddled lectures from philosophers and culture critics with their snobish disrespect for the so-called "managerial class."

**perm**

**Realism in environmental security is good- accurate**

**Gellers 10 (**Josh Gellers, third-year PhD student in Political Science at the University of California, Irvine and Assistant Director of the Focused Research Group in International Environmental Cooperation. He earned an MA in Climate and Society from Columbia University (2007) and a BA in Political Science with a minor in Geography and a certificate in International Relations from the University of Florida (2005), “Climate Change and Environmental Security: Bringing Realism Back In”, University of California, Irvine 2010)

The examples of environmental security issues entertained in this paper—political economy, resource scarcity, and human security—provide fertile ground for a discussion of the ways in which notions of environmental security are compatible with realism. 13 Regarding political economy, the economic downturn of a country caused by environmental factors has a tendency to destabilize the state when citizens become jaded by their government’s inability to provide basic human services during a time of need. Political instability can lead to internal conflict which can verily devolve into an interstate war. The focus here is not on the initial strife within the country experiencing an economic downturn as a result of climate change, but rather how one state’s economic depravity quickly becomes another state’s security threat emanating from spillover effects. Therefore, the spread of conflict originating from a neighboring state poses a significant, albeit indirect, threat due to climate change. For these reasons, the political economy approach to environmental security relates to defensive realism because powerful states would have a vested interest in seeing that the balance of power in the international system was not compromised by spillover effects.34 The resource scarcity approach approximates food, water, and energy security to environmental security. In the case of climate change, resources vital to a state’s survival are threatened by impacts on the natural environment. The resulting scarcity of vital resources leads to territorial disputes and proactive measures taken to secure the continued availability of necessities such as raw materials or petroleum. It may be therefore surmised that resource scarcity follows an offensive realist position. In order to maximize state power, a state may decide to take preemptive action against another state if it feels that essential resources may become scarce. This behavior seeks to ensure that great powers are able to maximize their power relative to that of other states who do not think to act decisively in an effort to procure vital resources. In essence, great powers will seek to maximize their security through aggressive means.35 Finally, human security entails a litany of threats to state survival, including food security and environmental security. Most importantly, however, human security as discussed here encapsulates threats to critical infrastructure. Devastation of critical infrastructure would translate into the mass migration of environmental refugees and expose states with overseas military assets to extraterritorial threats to regional or national security. A massive wave of environmental refugees introduced into a country would strain the ability of the recipient government to handle the increased population demanding essential human services. The elimination of foreign military bases would present strategic dilemmas to the occupying state since they, too, would be forced to either relocate or abdicate the region altogether. Permanent withdrawal from an area of strategic importance is unlikely to occur, but the initial adjustment period to either a new nearby location or temporary absence from the region could open up opportunities for aggression. Therefore, the aspects of human security discussed in this paper adhere to both defensive realist and offensive realist perspectives. Defensive realists would pay close attention to the shifting balance of power that might occur if one powerful state suffers the brunt of environmental migration and becomes weaker as a result. Offensive realists would be much more concerned about how sea level rise could (at least temporarily) obviate the peace-maintaining role of military installations abroad. In the example of China and Taiwan, China may perceive the territorial rewards of aggression substantially greater than the risks of failure and the maintenance of peace in the region. Waltz corroborates this theoretical assertion: “A state will use force to attain its goals if, after assessing the prospects for success, it values those goals more than it values the pleasures of peace.”36

**Drezner 05** [Daniel, Gregg Easterbrook, Associate Professor of International Politics at the Fletcher School of Law and Diplomacy at Tufts University, “War, and the dangers of extrapolation,” may 25]

Daily explosions in Iraq, massacres in Sudan, the Koreas smakestaring at each other through artillery barrels, a Hobbesian war of all against all in eastern Congo--combat plagues human society as it has, perhaps, since our distant forebears realized that a tree limb could be used as a club. But here is something you would never guess from watching the news: War has entered a cycle of decline. Combat in Iraq and in a few other places is an exception to a significant global trend that has gone nearly unnoticed--namely that, for about 15 years, there have been steadily fewer armed conflicts worldwide. In fact, it is possible that a person's chance of dying because of war has, in the last decade or more, become the lowest in human history. Is Easterbrook right? He has a few more paragraphs on the numbers: The University of Maryland studies find the number of wars and armed conflicts worldwide peaked in 1991 at 51, which may represent the most wars happening simultaneously at any point in history. Since 1991, the number has fallen steadily. There were 26 armed conflicts in 2000 and 25 in 2002, even after the Al Qaeda attack on the United States and the U.S. counterattack against Afghanistan. By 2004, Marshall and Gurr's latest study shows, the number of armed conflicts in the world had declined to 20, even after the invasion of Iraq. All told, there were less than half as many wars in 2004 as there were in 1991. Marshall and Gurr also have a second ranking, gauging the magnitude of fighting. This section of the report is more subjective. Everyone agrees that the worst moment for human conflict was World War II; but how to rank, say, the current separatist fighting in Indonesia versus, say, the Algerian war of independence is more speculative. Nevertheless, the Peace and Conflict studies name 1991 as the peak post-World War II year for totality of global fighting, giving that year a ranking of 179 on a scale that rates the extent and destructiveness of combat. By 2000, in spite of war in the Balkans and genocide in Rwanda, the number had fallen to 97; by 2002 to 81; and, at the end of 2004, it stood at 65. This suggests the extent andintensity of global combat is now less than half what it was 15 years ago. Easterbrook spends the rest of the essay postulating the causes of this -- the decline in great power war, the spread of democracies, the growth of economic interdependence, and even the peacekeeping capabilities of the United Nations. Easterbrook makes a lot of good points -- most people are genuinely shocked when they are told that even in a post-9/11 climate, there has been a steady and persistent decline in wars and deaths from wars. That said, what bothers me in the piece is what Easterbrook leaves out. First, he neglects to mention the biggest reason for why war is on the decline -- there's a global hegemon called the United States right now. Easterbrook acknowledges that "the most powerful factor must be the end of the cold war" but he doesn't understand why it's the most powerful factor. Elsewhere in the piece he talks about the growing comity among the great powers, without discussing the elephant in the room: the reason the "great powers" get along is that the United States is much, much more powerful than anyone else. If you quantify power only by relative military capabilities, the U.S. is a great power, there are maybe ten or so middle powers, and then there are a lot of mosquitoes.[If the U.S. is so powerful, why can't it subdue the Iraqi insurgency?--ed. Power is a relative measure -- the U.S. might be having difficulties, but no other country in the world would have fewer problems.] Joshua Goldstein, who knows a thing or two about this phenomenon, made this clear in a Christian Science Monitor op-ed three years ago: We probably owe this lull to the end of the cold war, and to a unipolar world order with a single superpower to impose its will in places like Kuwait, Serbia, and Afghanistan. The emerging world order is not exactly benign – Sept. 11 comes to mind – and Pax Americana delivers neither justice nor harmony to the corners of the earth. But a unipolar world is inherently more peaceful than the bipolar one where two superpowers fueled rival armies around the world. The long-delayed "peace dividend" has arrived, like a tax refund check long lost in the mail. The difference in language between Goldstein and Easterbrook highlights my second problem with "The End of War?" Goldstein rightly refers to the past fifteen years as a "lull" -- a temporary reduction in war and war-related death. The flip side of U.S. hegemony being responsible for the reduction of armed conflict is what would happen if U.S. hegemony were to ever fade away. Easterbrook focuses on the trends that suggest an ever-decreasing amount of armed conflict -- and I hope he's right. But I'm enough of a realist to know that if the U.S. should find its primacy challenged by, say, a really populous non-democratic country on the other side of the Pacific Ocean, all best about the utility of economic interdependence, U.N. peacekeeping, and the spread of democracy are right out the window. UPDATE: To respond to a few thoughts posted by the commenters: 1) To spell things out a bit more clearly -- U.S. hegemony important to the reduction of conflict in two ways. First, U.S. power can act as a powerful if imperfect constraint on pairs of enduring rivals (Greece-Turkey, India-Pakistan) that contemplate war on a regular basis. It can't stop every conflict, but it can blunt a lot of them. Second, and more important to Easterbrook's thesis, U.S. supremacy in conventional military affairs prevents other middle-range states -- China, Russia, India, Great Britain, France, etc. -- from challenging the U.S. or each other in a war. It would be suicide for anyone to fight a war with the U.S., and if any of these countries waged a war with each other, the prospect of U.S. intervention would be equally daunting. 2) Many commenters think what's important is the number of casualties, not the number of wars. This is tricky, however, because of the changing nature of warfighting and medical science. Compared to, say, World War II, wars now have far less of an effect on civilian populations. Furthermore, more people survive combat injuries because of improvements in medicine. These are both salutory trends, but I dunno if that means that war as a tool of statecraft is over -- if anything, it makes the use of force potentially more attractive, because of the minimization of spillover effects.

**SMRs solve inevitable water wars**

**Palley ’11** Reese Palley, The London School of Economics, 2011, The Answer: Why Only Inherently Safe, Mini Nuclear Power Plans Can Save Our World, p. 168-71

The third world has long been rent in recent droughts, by the search for water. In subsistence economies, on marginal land, water is not a convenience but a matter of life and death. As a result small **wars have been fought, rivers diverted, and wells poisoned in what could be a warning of what is to come as industrialized nations begin to face failing water supplies.** Quite aside from the demand for potable water is the dependence of enormous swaths of industry and agriculture on oceans of water used for processing, enabling, and cleaning a thousand processes and products. It is interesting to note that fresh water used in both industry and agriculture is reduced to a nonrenewable resource as agriculture adds salt and industry adds a chemical brew unsuitable for consumption. More than one billion people in the world already lack access to clean water, and things are getting worse. Over the next two decades, the average supply of water per person will drop by a third, **condemning millions** of people **to** waterborne **diseases** and an avoidable premature death.81 So **the stage is set for water access wars between** the **first and the third worlds**, between **neighbors** downstream of supply, between **big industry** and big agriculture, between **nations**, between **population** centers, and ultimately between you and the people who live next door for an already inadequate world water supply that is not being renewed. **As populations inevitably increase, conflicts will intensify**.82 It is only by virtue of the historical accident of the availability of nuclear energy that humankind now has the ability to remove the salt and other pollutants to supply all our water needs. The problem is that **desalination is an intensely local process**. Some localities have available sufficient water from renewable sources to take care of their own needs, but not enough to share with their neighbors, and it **is here that the scale of nuclear energy production must be defined locally.** Large scale 1,000 MWe plants can be used to desalinate water as well as for generating electricity However we cannot build them fast enough to address the problem, and, if built they would face the extremely expensive problem of distributing the water they produce. Better, much better, would be to use small desalinization plants sited locally. Beyond desalination for human use is the need to green some of the increasing desertification of vast areas such as the Sahara. Placing twenty 100 MWe plants a hundred miles apart along the Saharan coast would green the coastal area from the Atlantic Ocean to the Red Sea, a task accomplished more cheaply and quickly than through the use of gigawatt plants.83 This could proceed on multiple tracks wherever deserts are available to be reclaimed. Leonard Orenstein, a researcher in the field of desert reclamation, speculates: If most of the Sahara and Australian outback were planted with fast-growing trees like eucalyptus, the forests could draw down about 8 billion tons of carbon a year—nearly as much as people emit from burning fossil fuels today. As the forests matured, they could continue taking up this much carbon for decades.84 **The use of small, easily transported**, easily **sited**, and walk away **safe nuclear reactors dedicated to desalination is the only answer** to the disproportionate distribution of water resources that have distorted human habitation patterns for millennia. Where there existed natural water, such as from rivers, great cities arose and civilizations flourished. Other localities lay barren through the ages. We now have the power, by means of SMRs profiled to local conditions, not only to attend to existing water shortages but also to smooth out disproportionate water distribution and create green habitation where historically it has never existed. **The endless wars that have been fought**, first over solid bullion gold and then over oily black gold, **can now engulf us in the desperate reach for liquid blue gold. We need never fight these wars again as we now have the nuclear power to fulfill the** biblical **ability to “strike any local rock and have water gush forth**.”

**That solves indo-pak water wars that go nuclear.**

**Zahoor ‘11** (Musharaf, is researcher at Department of Nuclear Politics, National Defence University, Islamabad, “Water crisis can trigger nuclear war in South Asia,” <http://www.siasat.pk/forum/showthread.php?77008-Water-Crisis-can-Trigger-Nuclear-War-in-South-Asia>, AM)

South Asia is among one of those regions where water needs are growing disproportionately to its availability. The high increase in population besides large-scale cultivation has turned South Asia into a water scarce region. The two nuclear neighbors Pakistan and India share the waters of Indus Basin. All the major rivers stem from the Himalyan region and pass through Kashmir down to the planes of Punjab and Sindh empty into Arabic ocean. It is pertinent that the strategic importance of Kashmir, a source of all major rivers, for Pakistan and symbolic importance of Kashmir for India are maximum list positions. Both the countries have fought two major wars in 1948, 1965 and a limited war in Kargil specifically on the Kashmir dispute. Among other issues, the newly born states fell into water sharing dispute right after their partition. Initially under an agreed formula, Pakistan paid for the river waters to India, which is an upper riparian state. After a decade long negotiations, both the states signed Indus Water Treaty in 1960. Under the treaty, India was given an exclusive right of three eastern rivers Sutlej, Bias and Ravi while Pakistan was given the right of three Western Rivers, Indus, Chenab and Jhelum. The tributaries of these rivers are also considered their part under the treaty. It was assumed that the treaty had permanently resolved the water issue, which proved a nightmare in the latter course. India by exploiting the provisions of IWT started wanton construction of dams on Pakistani rivers thus scaling down the water availability to Pakistan (a lower riparian state). The treaty only allows run of the river hydropower projects and does not permit to construct such water reservoirs on Pakistani rivers, which may affect the water flow to the low lying areas. According to the statistics of Hydel power Development Corporation of Indian Occupied Kashmir, India has a plan to construct 310 small, medium and large dams in the territory. India has already started work on 62 dams in the first phase. The cumulative dead and live storage of these dams will be so great that India can easily manipulate the water of Pakistani rivers. India has set up a department called the Chenab Valley Power Projects to construct power plants on the Chenab River in occupied Kashmir. India is also constructing three major hydro-power projects on Indus River which include Nimoo Bazgo power project, Dumkhar project and Chutak project. On the other hand, it has started Kishan Ganga hydropower project by diverting the waters of Neelum River, a tributary of the Jhelum, in sheer violation of the IWT. The gratuitous construction of dams by India has created serious water shortages in Pakistan. The construction of Kishan Ganga dam will turn the Neelum valley, which is located in Azad Kashmir into a barren land. The water shortage will not only affect the cultivation but it has serious social, political and economic ramifications for Pakistan. The farmer associations have already started protests in Southern Punjab and Sindh against the non-availability of water. These protests are so far limited and under control. The reports of international organizations suggest that the water availability in Pakistan will reduce further in the coming years. If the situation remains unchanged, the violent mobs of villagers across the country will be a major law and order challenge for the government. The water shortage has also created mistrust among the federative units, which is evident from the fact that the President and the Prime Minister had to intervene for convincing Sindh and Punjab provinces on water sharing formula. The Indus River System Authority (IRSA) is responsible for distribution of water among the provinces but in the current situation it has also lost its credibility. The provinces often accuse each other of water theft. In the given circumstances, Pakistan desperately wants to talk on water issue with India. The meetings between Indus Water Commissioners of Pakistan and India have so far yielded no tangible results. The recent meeting in Lahore has also ended without concrete results. India is continuously using delaying tactics to under pressure Pakistan. The Indus Water Commissioners are supposed to resolve the issues bilaterally through talks. The success of their meetings can be measured from the fact that Pakistan has to knock at international court of arbitration for the settlement of Kishan Ganga hydropower project. The recently held foreign minister level talks between both the countries ended inconclusively in Islamabad, which only resulted in heightening the mistrust and suspicions. The water stress in Pakistan is increasing day by day. The construction of dams will not only cause damage to the agriculture sector but India can manipulate the river water to create inundations in Pakistan. The rivers in Pakistan are also vital for defense during wartime. The control over the water will provide an edge to India during war with Pakistan. The failure of diplomacy, manipulation of IWT provisions by India and growing water scarcity in Pakistan and its social, political and economic repercussions for the country can lead both the countries toward a war. The existent A-symmetry between the conventional forces of both the countries will compel the weaker side to use nuclear weapons to prevent the opponent from taking any advantage of the situation. Pakistan's nuclear programme is aimed at to create minimum credible deterrence. India has a declared nuclear doctrine which intends to retaliate massively in case of first strike by its' enemy. In 2003, India expanded the operational parameters for its nuclear doctrine. Under the new parameters, it will not only use nuclear weapons against a nuclear strike but will also use nuclear weapons against a nuclear strike on Indian forces anywhere. Pakistan has a draft nuclear doctrine, which consists on the statements of high ups. Describing the nuclear thresh-hold in January 2002, General Khalid Kidwai, the head of Pakistan's Strategic Plans Division, in an interview to Landau Network, said that Pakistan will use nuclear weapons in case India occupies large parts of its territory, economic strangling by India, political disruption and if India destroys Pakistan's forces. The analysis of the ambitious nuclear doctrines of both the countries clearly points out that any military confrontation in the region can result in a nuclear catastrophe. The rivers flowing from Kashmir are Pakistan's lifeline, which are essential for the livelihood of 170 million people of the country and the cohesion of federative units. The failure of dialogue will leave no option but to achieve the ends through military means.

# 2ac CP

**Perm do both**

**doesn’t solve**

**Telegraph 9**, [“Scientists to stop global warming with 100,000 square mile sun shade,” February 26th, http://www.telegraph.co.uk/earth/environment/globalwarming/4839985/Scientists-to-stop-global-warming-with-100000-square-mile-sun-shade.html]

Despite the obvious obstacles - including an estimated $350 trillion (£244trn) price tag for the project - Dr Angel is confident of getting the project off the ground. He said: "What we have developed is certainly effective and a method guaranteed to work. "Tests are ongoing but we expect to be ready to launch within 20 or 30 years time. Things that take a few decades are not that futuristic."

**fails and causes warming**

**Brahic 7**, Catherine, News Editor at the New Scientist ['Sunshade' for global warming could cause drought,” 8/13, http://www.newscientist.com/article/dn12397-sunshade-for-global-warming-could-cause-drought.html]

However, a study, led by Ken Caldeira of the Carnegie Institution of Washington in the US, warned that failing to correctly deploy or maintain such a scheme would result in sudden warming - which would be worse than the long-term warming that had been avoided because of its swiftness. Now, Kevin Trenberth and Aiguo Dai of the National Center for Atmospheric Research in Colorado, US, have shown that - even if correctly deployed - a sulphur sunshade could have deleterious effects on the environment by reducing rainfall. Cooling cloud Sulphur sunshades are inspired by the cooling effects of large volcanic eruptions, which blast sulphate particles into the stratosphere. The particles reflect part of the Sun's radiation back into space, reducing the amount of heat that reaches the Earth. In 1991, the eruption of Mount Pinatubo in the Philippines cooled Earth by a few tenths of a degree for several years. To study the effects that sulphur sunshades might have on rainfall, Trenberth and Dai looked at trends in precipitation and continental run-off from 1950 to 2004 to try to detect the impact of the eruptions of Mount Agung in Indonesia 1963, El Chichón in Mexico in 1982, and Pinatubo in 1991. The researchers had to account for the effects of El Niño, which tends to decrease rain over land, and increase it over the oceans. After this, a marked decrease in rainfall and run-off in the year after the Pinatubo eruption was clear (see graph, right). However, the Agung and El Chichón eruptions did not produce a detectable signal in the precipitation records. Pinatubo is thought to have pumped significantly more particles into the atmosphere than Agung and El Chichón, releasing aerosols that increased the optical density of the atmosphere by about 10 times more than each of the other two. "We think those two were not strong enough to have an effect on precipitation," says Dai. Dai and Trenberth say their results suggest that artificially putting large amounts of sulphate particles into the atmosphere in order to decrease solar radiation could have catastrophic effects on the planet's water cycle. "Creating a risk of widespread drought and reduced freshwater resources does not seem like an appropriate fix," they say.

**Links to politics**

**Rasmussen 10** - an electronic media company specializing in the collection, publication and distribution of public opinion polling information (January 15, Rasmussen Report, “50% Favor Cutting Back on Space Exploration”, http://www.rasmussenreports.com/public\_content/lifestyle/general\_lifestyle/january\_2010/50\_favor\_cutting\_back\_on\_space\_exploration)

Fifty percent (50%) of Americans now say the United States should cut back on space exploration given the current state of the economy, according to a new Rasmussen Reports national telephone survey. Just 31% disagree with cutting the space program, and 19% more are not sure. The new findings mark a six-point increase in support - from 44% last July - for cutting back on space exploration. Still, Americans are almost evenly divided when asked if the space program should be funded by the government or by the private sector. Thirty-five percent (35%) believe the government should pay for space research, while 38% think private interests should pick up the tab. Twenty-six percent (26%) aren’t sure which is best. Sixty-four percent (64%) of adults have at least a somewhat favorable view of NASA, including 18% with a very favorable opinion of the government’s chief space agency. Just 20% have a somewhat or very unfavorable opinion of the National Aeronautics and Space Administration, which celebrated its 50th anniversary in 2008. But that marks a sizable drop in support for NASA from a survey last May. At that time, 81% had a favorable view of NASA, including 24% with a very favorable opinion. The May findings, however, were a 23-point rebound for the space agency from July 2007 when just 58% had a favorable opinion. But, at that time, NASA was suffering some bad publicity, including reports about drunken astronauts. In the budget President Obama proposes in early February, NASA is hoping for $22 billion for the coming fiscal year, up $3 billion over the current year. This funding, according to news reports, will keep the agency on track for projects including landing on one of Mars’ moons in the next 15 years and further exploring the Earth’s moon. Women and Americans ages 18 to 29 are more strongly in support of cutting back on space exploration than are men and older adults. Democrats are more likely to agree than are Republicans and adults not affiliated with either party. Women also feel more strongly that the space program should be funded by the private sector. But unaffiliated adults and those in both political parties are narrowly divided over whether the space program is a government or private business responsibility. Investors are evenly divided on the question, while non-investors lean slightly more toward private sector financing. Only 27% of Americans believe the current goals of the space program should include sending someone to Mars. Fifty percent (50%) oppose such a mission, with 24% undecided. The findings on this question are unchanged from last July. The feelings are virtually identical about sending someone to the moon. Twenty-six percent (26%) like the idea, but twice as money (52%) are opposed to sending someone to the moon as one of the current goals of the space program.

**biochar causes warming**

**Ernsting** Almuth, writer for Biofuelwatch, **and smolker** Rachel, PhD in biology, researcher for Global Justice Ecology Project **2009** [“Biochar for Climate Change Mitigation: Fact or Fiction?” February, http://www.biofuelwatch.org.uk/docs/biocharbriefing.pdf]

There is no question that the carbon in biochar will eventually end up back in the atmosphere at some point in the future. It is biological carbon: free to circulate between the atmosphere, soils, plants, oceans etc. and thus capable of contributing to climate change. Fossil carbon, on the other hand, is permanently and safely sequestered within the earth’s crust. The problem of climate change is caused by the dual impacts of both extracting fossil carbon and dumping it into the above ground biological pool, and at the same time, damaging ecosystems so severely that their capacity to store carbon is compromised. ‘Biochar’, like other bio- sequestration technologies does nothing to stem the flow of fossil carbon into the biosphere. Instead, it seeks to address the problem by manipulating “sink capacity” of the biosphere. Worse yet, the close link between the coal industry and biochar production models of companies such as Eprida and Carbon Crucible suggests that ‘biochar’ will further perpetuate fossil fuel burning. This would also be the case if biochar is included in carbon trading mechanisms where it would be used to “offset” and legitimize further fossil fuel burning. Can charcoal act as a reliable carbon sink? Amazonian indigenous peoples succeeded in designing a method which has maintained soil carbon for thousands of years. Elsewhere, some charcoal remains in soil have been dated as far back as 23,000 years ago. According to Lehmann et al., modern large scale charcoal application could sequester as much as 9.5 billion tons of carbon per year, which would necessitate over 500 millions of hectares of dedicated plantations. Even if we could duplicate the success of Terra Preta on a small scale, the climate impacts of converting large parts of the planet to ‘charcoal plantations’ would be devastating and involve large-scale deforestation and other ecosystem destruction. The carbon contained in the charcoal might be sequestered for a while, but how long is “a while”? What if we fail? What if modern charcoal remained in soils for a hundred years or even less, but then suddenly released its’ carbon back into the atmosphere? Proponents are confident enough that they argue ‘biochar’ should be classed as a “permanent” carbon sink, at least permanent enough to be included in a post 2012 climate agreement. So far the results from small scale soil-science studies paint a very different picture. In order for ‘biochar’ to be properly deemed a ‘carbon sink’, two conditions must be fulfilled: First, we must be sure that the carbon in the charcoal will not end up being broken down and emitted to the atmosphere as carbon dioxide. Second, we must also be sure that adding charcoal does not cause large quantities of the pre-existing carbon in the soil to degrade and release CO2. Neither can be guaranteed at present. Can ‘biochar’ become a carbon source? The success of Terra Preta proves that under certain environmental conditions, some black carbon (the type of carbon found in charcoal) can remain in the soil for very long periods. But there is equally clear evidence that black carbon can be, and frequently is, lost from soil. Worldwide, far more black carbon is produced by wildfires every year than remains in soils or, through erosion, ends up in the oceans. A recent peer-reviewed study of black carbon remains from swidden agriculture in Western Kenya revealed that 72% of the carbon was lost in the first 20-30 years.7 The processes through which black carbon is lost are not well understood. Johannes Lehmann of Cornell University, chair of the IBI, has confirmed that very little is known about how long charcoal will remain in the soil and that this will depend on various factors, including soil type and climate, type of biomass used and temperature at which it is charred.8 It is not certain that all of the black carbon lost from soil ends up in the atmosphere as carbon dioxide, but there is worrying evidence that at least a significant proportion of it does. Wildfires may play a role in the loss of soil carbon from charcoal, and an ongoing study is underway to examine whether fires can cause the carbon in charcoal to be degraded and released into the atmosphere.9 Meanwhile there is good evidence that soil microbes can and do metabolize black carbon, which results in the carbon being emitted into the atmosphere.10 In fact, one concern is that the large scale application of charcoal could create an expanded ecological niche for black-carbon degrading microbes.11 There is also strong evidence that charcoal can increase soil microbial activity which degrades pre-existing (non charcoal) soil organic carbon into carbon dioxide. A 2008 peer-reviewed study suggests that placing charcoal into boreal forest soil led to the loss of substantial amounts of soil organic carbon over ten years.12 Several other ongoing studies13,14 are looking at whether biochar might increase carbon dioxide from soil. One short-term study in Colombia revealed a large increase (31%) in carbon losses following biochar addition. It was not possible to ascertain for certain the source of the carbon, but the author, (personal communication) assumes the losses are a reflection of increased plant biomass growth that resulted in the first year following biochar addition and then declined. Initial results from a study by Danish scientists suggest that biochar increases carbon dioxide flows from soils. The authors pose the question whether this is due to the charcoal increasing microbial activity and breaking down existing soil organic carbon, or whether carbon in the charcoal is being lost through oxidation. In short, this critical and complicated question remains unanswered. In sum, there is little basis for confidence that charcoal will retain carbon in soils. The charcoal itself can be degraded, and charcoal encourages microbial activity that in some cases degrades either the charcoal carbon or other soil organic carbon or both. In other words, charcoal in soil has the potential to become a carbon *source*, rather than a carbon sink. This is especially true if the carbon emissions associated with large-scale land conversion, discussed below, are included in the equation.

**SMRs solve Mars colonization**

**O’Neil 11**, Ian, PhD from University of Wales, founder and editor of Astroengine, space producer for Discovery News [“'Suitcase' Nuclear Reactors to Power Mars Colonies,” August 30th, http://news.discovery.com/space/mars-colonies-powered-by-mini-nuclear-reactors-110830.html]

Nuclear power is an emotive subject -- particularly in the wake of the Fukushima power plant disaster after Japan's March earthquake and tsunami -- but in space, it may be an essential component of spreading mankind beyond terrestrial shores. On Monday, at the 242nd National Meeting and Exposition of the American Chemical Society (ACS) in Denver, Colo., the future face of space nuclear power was described. You can forget the huge reactor buildings, cooling towers and hundreds of workers; the first nuclear reactors to be landed on alien worlds to support human settlement will be tiny. Think less "building sized" and more "suitcase sized." "People would never recognize the fission power system as a nuclear power reactor," said James E. Werner, lead of the Department of Energy's (DOE) Idaho National Laboratory. "The reactor itself may be about 1 feet wide by 2 feet high, about the size of a carry-on suitcase. There are no cooling towers. A fission power system is a compact, reliable, safe system that may be critical to the establishment of outposts or habitats on other planets. Fission power technology can be applied on Earth's Moon, on Mars, or wherever NASA sees the need for continuous power." The joint NASA/DOE project is aiming to build a demonstration unit next year. Obviously, this will be welcome news to Mars colonization advocates; to have a dependable power source on the Martian surface will be of paramount importance. The habitats will need to have a constant power supply simply to keep the occupants alive. This will be "climate control" on an unprecedented level. Water extraction, reclamation and recycling; food cultivation and storage; oxygen production and carbon dioxide scrubbing; lighting; hardware, tools and electronics; waste management -- these are a few of the basic systems that will need to be powered from the moment humans set foot on the Red Planet, 24 hours 39 minutes a day (or "sol" -- a Martian day), 669 sols a year. Fission reactors can provide that. However, nuclear fission reactors have had a very limited part to play in space exploration up until now. Russia has launched over 30 fission reactors, whereas the US has launched only one. All have been used to power satellites. Radioisotope thermoelectric generators (RTGs), on the other hand, have played a very important role in the exploration of the solar system since 1961. These are not fission reactors, which split uranium atoms to produce heat that can then be converted into electricity. RTGs depend on small pellets of the radioisotope plutonium-238 to produce a steady heat as they decay. NASA's Pluto New Horizons and Cassini Solstice missions are equipped with RTGs (not solar arrays) for all their power needs. The Mars Science Laboratory (MSL), to be launched in November 2011, is powered by RTGs for Mars roving day or night. RTGs are great, but to power a Mars base, fission reactors would be desirable because they deliver more energy. And although solar arrays will undoubtedly have a role to play, fission reactors will be the premier energy source for the immediate future. "The biggest difference between solar and nuclear reactors is that nuclear reactors can produce power in any environment," said Werner. "Fission power technology doesn't rely on sunlight, making it able to produce large, steady amounts of power at night or in harsh environments like those found on the Moon or Mars. A fission power system on the Moon could generate 40 kilowatts or more of electric power, approximately the same amount of energy needed to power eight houses on Earth." "The main point is that nuclear power has the ability to provide a power-rich environment to the astronauts or science packages anywhere in our solar system and that this technology is mature, affordable and safe to use." Of course, to make these "mini-nuclear reactors" a viable option for the first moon and Mars settlements, they'll need to be compact, lightweight and safe. Werner contends that once the technology is validated, we'll have one of the most versatile and affordable power resources to support manned exploration of the solar system.

**extinction**

**Schulze-Makuch and Davies 2010** (Dirk Schulze-Makuch, Ph.D., School of Earth and Environmental Sciences, Washington State University and Paul Davies, Ph.D., Beyond Center, Arizona State University, “To Boldly Go: A One-Way Human Mission to Mars”, <http://journalofcosmology.com/Mars108.html>)

There are several reasons that motivate the establishment of a permanent Mars colony. We are a vulnerable species living in a part of the galaxy where cosmic events such as major asteroid and comet impacts and supernova explosions pose a significant threat to life on Earth, especially to human life. There are also more immediate threats to our culture, if not our survival as a species. These include global pandemics, nuclear or biological warfare, runaway global warming, sudden ecological collapse and supervolcanoes (Rees 2004). Thus, the colonization of other worlds is a must if the human species is to survive for the long term. The first potential colonization targets would be asteroids, the Moon and Mars. The Moon is the closest object and does provide some shelter (e.g., lava tube caves), but in all other respects falls short compared to the variety of resources available on Mars. The latter is true for asteroids as well. Mars is by far the most promising for sustained colonization and development, because it is similar in many respects to Earth and, crucially, possesses a moderate surface gravity, an atmosphere, abundant water and carbon dioxide, together with a range of essential minerals. Mars is our second closest planetary neighbor (after Venus) and a trip to Mars at the most favorable launch option takes about six months with current chemical rocket technology.

# 2ac elections

**Both candidates have same Iran policy**

Aaron David **Miller 12**, scholar at the Woodrow Wilson International Center, “Barack O'Romney”, May 23, http://www.foreignpolicy.com/articles/2012/05/23/barack\_oromney

It's not only on these core assumptions that the candidates share a broad agreement. These principles translate into specific policies where it would be tough to tell the difference between a Romney and an Obama presidency: Iran: Sorry, I just don't see any significant difference between the way Obama is handling Iran's nuclear program and the way Romney might as president. And that's because there's seems to be an inexorable arc to the Iranian nuclear problem. If by 2013 sanctions and negotiations don't produce a sustainable deal and Iran continues its quest for a nuclear weapon, one of two things is going to happen: Israel is likely to strike, or we will. If it's the former, both Obama and Romney would be there to defend the Israelis and manage the mess that would follow. Both would be prepared to intercede on Israel's behalf if and when it came to that. As for a U.S. strike, it's becoming a bipartisan article of faith that the United States will not permit Iran to acquire a nuclear weapon. And both men are prepared to use military strikes against Iran's nuclear sites as a last resort, even if it only means a delay (and that's what it would mean) in Iran's quest for nukes.

**No strikes – negotiations now**

Slavin, 3/23/12

[Barbara, Senior Fellow at the Atlantic Council, Washington, D.C, “ Iran, Israel and U.S. moves from war rhetoric back to diplomacy,” <http://womennewsnetwork.net/2012/03/23/iran-israel-us-war-rhetoric/>]

After months of sabre-rattling rhetoric by Iran, Israel and the United States, there seems to be a collective, and welcome, time out. Since President Barack Obama’s 4 March speech to the American Israel Public Affairs Committee (AIPAC), all sides have been stressing non-military means to try to resolve the crisis over Iran’s nuclear program. While asserting that he is determined to prevent Iran from developing nuclear weapons, Obama spent much of his AIPAC address decrying what he called “loose talk” of war. He spoke eloquently of the costs of military conflict for a nation that has fought two wars in the last decade. His message to visiting Israeli Prime Minister Benjamin Netanyahu was clear: I am not going to start another war and you are not going to drag me into one. Netanyahu, for his part, appeared to bow to several realities. A savvy politician, he is recalculating the odds that Obama will be re-elected for another four-year term. The Israeli leader also knows that most of Israel’s defense and intelligence establishment – as well as a majority of the Israeli people – oppose a unilateral strike on Iran that could spark massive retaliation without significantly setting back the Iranian nuclear program. Former Mossad chief Meir Dagan has called such a strike “stupid”. Obama argues that economic sanctions are having a major impact on the Iranian economy and should be given more time to work. Evidence bears this out. U.S. banking sanctions and the threat of a European oil embargo have reduced the value of Iran’s currency by half, increased inflation and unemployment and depressed oil production. The International Energy Agency reported last week that Iran is pumping only 3.3 million barrels a day – down from 3.8 million barrels last year – and Iran’s oil exports may drop by as much as 50 per cent this summer. While denying that sanctions are a factor, Iranian leaders have agreed to come back to negotiations with the so-called P5+1 – the five permanent members of the UN Security Council plus Germany. Talks – the first since January 2011 – are expected to take place after the Iranian New Year holiday. In advance, the Islamic Republic has been conducting a charm offensive. Supreme Leader Ayatollah Ali Khamenei on 8 March reaffirmed a 1995 fatwa that building nuclear weapons would be a “great sin”. He also praised Obama for criticising war talk. “Such remarks are good and indicate a step out of delusions”, Khamenei said. On 15 March, Mohammad Javad Larijani, a U.S.-educated physicist and adviser to Khamenei, told CNN’s Christiane Amanpour that Iran would provide “full transparency” for its nuclear program in return for acceptance of Iran’s right to peaceful nuclear energy under the Nuclear Non-Proliferation Treaty. Larijani also denied that Iran had any intention of attacking Israel, saying that Iran would defend itself against aggression but would not strike another country first. The Iranians have signaled their interest in dialogue with the United States in other ways. On 5 March, Iran’s Supreme Court ordered a retrial for an Iranian American former U.S. Marine who had been sentenced to death as a CIA spy. On 13 March, the U.S. deported back to Iran an Iranian arms dealer arrested in 2007 in a sting operation in the Republic of Georgia. Taken together, these steps improve the atmosphere for negotiations. However, it remains unclear whether the Obama administration and its partners will put forward proposals that could provide Iran a face-saving way to reduce tensions.

**DOE is funding SMRs now and Obama’s taking credit -**

**Romney winning now – most qualified models.**

Caughey and Kelly 10-4. [Peter, David, CU-Boulder media relations, "Updated election forecasting model still points to Romney win, University of Colorado study says" University of Colorado Boulder Press Release -- www.colorado.edu/news/releases/2012/10/04/updated-election-forecasting-model-still-points-romney-win-university]

An update to an election forecasting model announced by two University of Colorado professors in August continues to project that Mitt Romney will win the 2012 presidential election.¶ According to their updated analysis, Romney is projected to receive 330 of the total 538 Electoral College votes. President Barack Obama is expected to receive 208 votes -- down five votes from their initial prediction -- and short of the 270 needed to win.¶ The new forecast by political science professors Kenneth Bickers of CU-Boulder and Michael Berry of CU Denver is based on more recent economic data than their original Aug. 22 prediction. The model itself did not change.¶ “We continue to show that the economic conditions favor Romney even though many polls show the president in the lead,” Bickers said. “Other published models point to the same result, but they looked at the national popular vote, while we stress state-level economic data.”¶ While many election forecast models are based on the popular vote, the model developed by Bickers and Berry is based on the Electoral College and is the only one of its type to include more than one state-level measure of economic conditions. They included economic data from all 50 states and the District of Columbia.¶ Their original prediction model was one of 13 published in August in PS: Political Science & Politics, a peer-reviewed journal of the American Political Science Association. The journal has published collections of presidential election models every four years since 1996, but this year the models showed the widest split in outcomes, Berry said. Five predicted an Obama win, five forecast a Romney win, and three rated the 2012 race as a toss-up.¶ The Bickers and Berry model includes both state and national unemployment figures as well as changes in real per capita income, among other factors. The new analysis includes unemployment rates from August rather than May, and changes in per capita income from the end of June rather than March. It is the last update they will release before the election.¶ Of the 13 battleground states identified in the model, the only one to change in the update was New Mexico -- now seen as a narrow victory for Romney. The model foresees Romney carrying New Mexico, North Carolina, Virginia, Iowa, New Hampshire, Colorado, Wisconsin, Minnesota, Pennsylvania, Ohio and Florida. Obama is predicted to win Michigan and Nevada.¶ In Colorado, which Obama won in 2008, the model predicts that Romney will receive 53.3 percent of the vote to Obama’s 46.7 percent, with only the two major parties considered.¶ While national polls continue to show the president in the lead, “the president seems to be reaching a ceiling at or below 50 percent in many of these states,” Bickers said. “Polls typically tighten up in October as people start paying attention and there are fewer undecided voters.”¶ The state-by-state economic data used in their model have been available since 1980. When these data were applied retroactively to each election year, the model correctly classifies all presidential election winners, including the two years when independent candidates ran strongly: 1980 and 1992. It also correctly estimates the outcome in 2000, when Al Gore won the popular vote but George W. Bush won the election through the Electoral College.

**default aff – polling bias**

Barnes 9-18. [Fred, executive editor of the Weekly Standard, "Weekly Standard: Why Obama's Ahead" NPR -- www.npr.org/2012/09/18/161340205/weekly-standard-why-obamas-ahead]

— Polls. Polls often make Obama look more popular than he is. In some cases, pollsters use a sample of voters more appropriate for 2008 than 2012. "I do believe pollsters are being cautious about turnout models," a conservative pollster said. "They are skewing towards a 2008 turnout model rather than something normal, which helps Obama's numbers. I also think there are just a slight number of folks who say they are voting Obama, but really not. Maybe one or two percent."¶ One practice that aids Obama and Democrats is heavy reliance on cell phone interviews, a pollster told me. "If they're getting 30 percent of their responses from cell phone interviews," as some pollsters do, that "may skew their responses to a more D-leaning audience." This pollster does 20 percent cell phone interviews and last week had Romney leading Obama, 48-to-47 percent.

**Incentives now**

**Kramer 12**

David Kramer, Physics Today, Sept 2012, Romney, Obama surrogates spell out candidates’ energy policies, www.physicstoday.org/resource/1/phtoad/v65/i9/p20\_s1

Both candidates favor growth in nuclear energy, and both support loan guarantees to back the initial deployment of advanced reactors. Stuntz said Romney would take steps to lower the cost of building new plants, “whether that means modular reactors that can be approved and rolled out in more cookie-cutter fashion . . . or whether that means smaller reactors.” The Obama administration’s support for nuclear power is evident from the $7 billion loan guarantee from DOE to back construction of two new reactors at an existing nuclear power plant in Georgia, Reicher noted. “**There’s serious money going into small modular reactors** and serious policy work going on in how to reform the licensing process” at the Nuclear Regulatory Commission to expedite approval.

**Euro crisis and Iran doom Obama**

**Hulsman 12**, John, President and Co-Founder of John C. Hulsman Enterprises [“Obama’s foreign policy black swans,” 5/6, http://www.aspeninstitute.it/aspenia-online/article/obama%E2%80%99s-foreign-policy-black-swans

And here almost all the news is bad, only having the potential to make things worse for the President. As such, the White House wants the next few months to fly by, with nothing much happening. But two foreign policy black swans have now glided clearly into view, either of which could decisively doom the Obama campaign. Worse, the President’s team has almost no control over either of them and is instead at their mercy. Europe hits the iceberg According to sources inside the Obama campaign, Europe can just about muddle through the next few months, but only if everything goes right. To put it mildly, given the European elite’s dreadful policy track record and glacial pace at dealing with the euro crisis, it would seem the Obama team is prizing hope over experience; the whole festering mess could so easily turn septic. If the European recession becomes a depression, if the partial collapse of the euro becomes another Lehman moment, even a partially shielded America will be knocked enough off course - given its own weak economic recovery to begin with. This would doom Obama to a single term. Behind it all, there is undoubted donor fatigue as well as colony fatigue in Europe. Far from deepening ties amongst European nations, the euro crisis has strained relations in a way not seen over the post-war era. Germans (and I live there and hear this every day) are tired of supplying the credit card for others’ parties and lack of fiscal rigor; they don’t want to pay for Greeks who retire in their 50s (Germans continue plodding along in work until they are 67), many of whom don’t pay their taxes. In return, southern European states don’t want to be arrogantly told what to do by a Berlin who seems as inflexible about austerity uber alles as it is oblivious to the real sufferings of the people. There is no doubt the debtor states borrowed too much. However there is also no doubt that German and French banks lent them too much. In other words, there are plenty of villains here beyond Germany’s comforting and simplistic narrative of events. Because of past mishandlings, the euro crisis is now like dealing with an unexploded bomb; one wrong move and the whole thing could blow sky high. The latest June 1 poll puts hard left Syriza ahead in the Greek election. Were this rejectionist party (regarding the bailouts) to win and form a government, their fairy tale of a substantial bailout renegotiation with the Germans would within days be exposed for the fantasy it is. Greece would rather quickly be booted from the currency. Far more important Spain - struggling with 10-year bond yields at an almost unsustainable 6.7% - could well be forced to ask for a bailout in the near term, as its bad banking debt runs to at least 180 billion euros. If Spain, the fourth largest economy in the eurozone, is forced to go cap in hand to the EU (ie the Germans) the euro project itself will be called into existential question. The thing hangs by a thread, and there is precious little Obama or an ineffective Treasury Secretary Tim Geithner (he always looks as if he’s stifling a scream when he leaves European meetings, making him less than popular) can do. Iran may well come to a head As if this were not enough (and contrary to conventional pundit wisdom at present), an Isreali strike on Iran’s nuclear sites in September cannot be ruled out. Knowing that Obama could, once re-elected, afford to be far tougher with his government over this issue - demanding that the sanctions approach be given real time - Prime Minister Netanyahu must be tempted to strike in the Autumn, ahead of the American election, while he still has the military ability to do so. At present, Israel worries with reason that the Fordo reprocessing plant (buried more than 290 feet below a mountain outside the holy city of Qom) may soon be impregnable to Israeli bunker busters. At which point Israel would have to count on the United States (with its superior munitions) to act in its place. But it is not part of Israel’s strategic culture to subcontract its existential survival out to any other country, even an ally like America. Worse, from the Israeli point of view, despite all the kind words the US and Israel have for one another, their objectives fundamentally diverge over Iran. For Obama the red line is Iran acquiring nuclear weapons, for Netanyahu it is Tehran having the capacity to produce nuclear weapons; there is a canyon between these two positions. Since the two famously do not get along (Netanyahu much prefers Romney, who has made almost-unquestioned support for Israel a major plank of his putative foreign policy), the Israeli Prime Minister will not shed tears if his actions cause Obama’s defeat in November. From his perspective that would just amount to an added bonus. For there is little doubt that this second foreign policy black swan could also easily derail the President’s plans. Triggered by the potential closure of the Strait of Hormuz, a spike in oil prices and the global economic uncertainty unleashed by such an attack would almost inevitably push a very fragile Western world toward calamity. Without question, enough economic damage would be done to put paid to the White House’s chance for a second term.

**Silver’s long term polls aren’t accurate**

Dickinson ‘10 – Professor of Political Science Matthew, professor of political science at Middlebury College and taught previously at Harvard University where he worked under the supervision of presidential scholar Richard Neustadt. “Nate Silver Is Not A Political Scientist”. November 1, 2010

I’ve made this point before, most recently during the 2008 presidential campaign when Silver’s forecast model, with its rapidly changing “win” probabilities, made it appear as if voters were altering their preferences on a weekly basis. This was nonsense, of course, which is why the political science forecast models issued around Labor Day proved generally accurate. But in light of Silver’s column yesterday, it bears repeating: he’s not a political scientist. He’s an economist by training, but he’s really a weathercaster when it comes to predicting political outcomes. That is, he’s very adept at doing the equivalent of climbing to the top of Mt. Worth (a local skiing area for those not familiar with God’s Green Mountains), looking west toward Lake Champlain to see what the prevailing winds are carrying toward us, and issuing a weather bulletin for tomorrow. Mind you, this isn’t necessarily a knock on Silver’s work – he’s a damn good weathercaster. In 2008, his day—before election estimate came pretty close to nailing the Electoral College vote. More generally, at his best, he digs up intriguing data or uncovers interesting political patterns. At the same time, however, when it comes to his forecast models, he’s susceptible to the “Look Ma! No Hands!” approach in which he suggests the more numerous the variables in his model, the more effective it must be. In truth, as Sam Wang demonstrated in 2008, when his much simpler forecast model proved more accurate than Silver’s, parsimony can be a virtue when it comes to predictions. Why do I bring this up now? Because, in the face of conflicting data, weathercasters can become unstrung if they are used to simply reporting the weather without possessing much of a grasp of basic meteorology. In yesterday’s column which the more cynical among us (who, moi?) might interpret as a classic CYA move, Silver raises a number of reasons why current forecasts (read: his!) might prove hopelessly wrong. Now, I applaud all efforts to specify the confidence interval surrounding a forecast. But the lack of logic underling Silver’s presentation reveals just how little theory goes into his predictions. For instance, he suggests the incumbent rule – which he has spent two years debunking – might actually come into play tomorrow. (The incumbent rule says, in effect, that in close races, almost all undecideds break for the challenger). Silver has provided data suggesting this rule didn’t apply in 2006 or 2008. You would think, therefore, that he doesn’t believe in the incumbent rule. Not so! He writes, “So, to cite the incumbent rule as a point of fact as wrong. As a theory, however — particularly one that applies to this election and not necessarily to others — perhaps it will turn out to have some legs.” Excuse me? Why, if there’s no factual basis for the incumbent rule, will it turn out to apply in this election? The rest of the column rests on equally sketchy reasoning. Silver concludes by writing, “What we know, however, is that polls can sometimes miss pretty badly in either direction. Often, this is attributed to voters having made up (or changed) their minds at the last minute — but it’s more likely that the polls were wrong all along. These are some reasons they could be wrong in a way that underestimates how well Republicans will do. There are also, of course, a lot of reasons they could be underestimating Democrats; we’ll cover these in a separate piece.” Let me get this straight: it’s possible the polls are underestimating the Republican support. Or, they might be underestimating Democrats’ support. I think this means if his forecast model proves incorrect, it’s because the polls “were wrong all along”. Really? Might it instead have something to do with his model? Come on Silver – man up! As it is, you already take the easy way out by issuing a forecast a day before the election, in contrast to the political scientists who put their reputations on the line by Labor Day. Do you believe in your model or not? The bottom line: if you want to know tomorrow’s weather, a weathercaster is good enough. If you want to know what causes the weather, you might want to look elsewhere.

**intrinsicness**

**no link – GoP won’t politicize the plan**

Davenport ’12 (Coral Davenport is the energy and environment correspondent for National Journal. Prior to joining National Journal in 2010, Davenport covered energy and environment for Politico, and before that, for Congressional Quarterly, “Pentagon's Clean-Energy Initiatives Could Help Troops—and President Obama”, <http://www.nationaljournal.com/pentagon-s-clean-energy-initiatives-could-help-troops-and-president-obama-20120411?mrefid=site_search>, April 11, 2012, LEQ)

The Pentagon plans to roll out a new slate of clean- and renewable-energy initiatives on Wednesday as part of its long-term “Operational Energy Strategy” aimed at reducing the military’s dependence on fossil fuels while increasing its front-line fighting power. The moves are in keeping with a sustained push by the military in recent years to cut its dependence on oil, which costs the Pentagon up to $20 billion annually and has led to the deaths of thousands of troops and contractors, killed while guarding fuel convoys in Iraq and Afghanistan. Some renewable-energy projects at the Defense Department are already paying big dividends. Pentagon efforts to research and deploy products like hybrid batteries for tanks have enabled combat vehicles to travel farther without refueling, while advances in portable solar generation have allowed troops on the front lines in Afghanistan to power housing and electronic facilities without requiring fuel convoys to make dangerous drives through hostile territory to deliver the diesel required for traditional generators. It doesn’t hurt that the initiatives also tie in politically with President Obama’s unwavering support for clean energy on the campaign trail—even as Republicans continue to attack him almost daily on energy issues. GOP and conservative “super PACs” have no problem hitting Obama for his support of renewable-energy programs in the wake of the bankruptcy of Solyndra, the solar panel company that cost the federal government $535 million in loan guarantees from the economic stimulus law. But politically, it’s a lot harder for traditionally hawkish Republicans to criticize the Pentagon’s embrace of renewable power, which Defense officials have repeatedly made clear is not being done in the interest of an environmental agenda, but rather to increase security and fighting capability on the front lines. Defense officials have also emphasized that much of the funding for the Pentagon’s renewable-energy initiatives won’t come from taxpayer dollars. On Tuesday, a Defense official said that the construction of renewable-electricity plants for Army and Air Force bases–which the official said could cost up to $7 billion—will be privately financed.

**Energy not key to voters**

Farnam, 12 -- Washington Post politics and business reporter (T.W. "Energy issue gets jolt of ads," Washington Post, 6-29-12, l/n, accessed 8-27-12, mss)

Energy issues don't spark much excitement among voters, ranking below health care, education and the federal budget deficit - not to mention jobs and the economy. And yet those same voters are being flooded this year with campaign ads about energy policy. Particularly in presidential swing states, the airwaves are laden with messages boosting oil drilling and natural gas and hammering President Obama for his support of green energy. The Cleveland area alone has seen $2.7 million worth of energy-related ads. The disconnect between what voters say they care about and what they're seeing on TV lies in the money behind the ads, much of it coming from oil and gas interests. Those funders get the double benefit of attacking Obama at the same time they are promoting their industry. Democrats also have spent millions on the subject, defending the president's record and linking Republican candidate Mitt Romney to Big Oil. Overall, more than $41 million, about one in four of the dollars spent on broadcast advertising in the presidential campaign, has gone to ads mentioning energy, more than a host of other subjects and just as much as health care, according to ad-tracking firm Kantar Media/Cmag. Much to gain or lose In a campaign focused heavily on jobs and the economy, all of this focus on energy seems a bit off topic. But the stakes are high for energy producers and environmentalists, who are squared off over how much the government should regulate the industry. And attention has been heightened by a recent boom in production using new technologies such as fracking and horizontal drilling, as well as a spike in gas prices this spring just as the general-election campaign got underway. When asked whether energy is important, more than half of voters say yes, according to recent polls. But asked to rank their top issues, fewer than 1 percent mention energy.

**No link – if immigration, health care, and the embassy attacks don’t swing the election the plan wont**

**Nuclear power popular**

Brown ’12 (Dave Brown — Exclusive to Uranium Investing News, “United States Still Favors Nuclear Power”, <http://uraniuminvestingnews.com/11008/united-states-still-favors-nuclear-power.html>, March 28, 2012, LEQ)

According to the results of Gallup’s annual Environment survey, conducted earlier this month, the majority of Americans continue to favor nuclear energy as a source of electricity for the United States. The survey indicated that 57 percent of participants were in favor of nuclear power this year, the same amount as in 1994, the first year for the survey. This year’s results also demonstrate an equal level of support among participants as last year, just prior to the Japanese earthquake and tsunami. Support for the nuclear industry as measured by the survey has ranged from a low of 46 percent in 2001 to a high of 62 percent in 2010. These results are of significance to investors as the US is the largest consumer of uranium in the world, with 104 operational nuclear reactors. Continued public support and confidence from the country should guide future political decisions and foster economic interest in domestic and international uranium resources as well as in nuclear industry stakeholders.

**econ outweighs the plan**

Pew 12. [Pew Research Center, “GOP Holds early turnout edge, but little enthusiasm for Romney” June 21 -- http://www.people-press.org/2012/06/21/section-2-assessing-obama-and-romneys-support/]

Economy Dominates Voter Concerns¶ Economic conditions are at the forefront of most voters’ concerns. When asked to name the issue they would most like to hear the candidates talk about, 56% mention one of three economic topics: the economy broadly (42%), the job situation (13%) or the budget deficit (4%). Health care is the only other issue garnering more than one-in-ten mentions (18%).¶ A separate close-ended question echoes these economic concerns. When offered six choices, a plurality of voters (35%) say that jobs will be the top issue in deciding their vote for president this year, followed by the budget deficit (23%) and health care (19%). Another 11% say Social Security will matter most to them, with relatively few citing immigration (5%) or gay marriage (4%) as the most important issue affecting their vote.¶ Jobs top the list for both certain Obama supporters (37%) and swing voters (38%), while certain Romney supporters are about equally likely to say jobs (30%) as to say the budget deficit (33%). Health care is more frequently named by certain Obama voters (26%) than either certain Romney (14%) or swing voters (15%).

**Winners win**

**Halloran 10,** Liz Halloran is a Washington correspondent for NPR “For Obama, What A Difference A Week Made,” NPR April 6

Amazing what a win in a major legislative battle will do for a president's spirit. (Turmoil over spending and leadership at the Republican National Committee over the past week, and the release Tuesday of a major new and largely sympathetic book about the president by New Yorker editor David Remnick, also haven't hurt White House efforts to drive its own, new narrative.) Though the president's national job approval ratings failed to get a boost by the passage of the health care overhaul — his numbers have remained steady this year at just under 50 percent — he has earned grudging respect even from those who don't agree with his policies. "He's achieved something that virtually everyone in Washington thought he couldn't," says Henry Olsen, vice president and director of the business-oriented American Enterprise Institute's National Research Initiative. "And that's given him confidence." The protracted health care battle looks to have taught the White House something about power, says presidential historian Gil Troy — a lesson that will inform Obama's pursuit of his initiatives going forward. "I think that Obama realizes that presidential power is a muscle, and the more you exercise it, the stronger it gets," Troy says. "He exercised that power and had a success with health care passage, and now he wants to make sure people realize it's not just a blip on the map." The White House now has an opportunity, he says, to change the narrative that had been looming — that the Democrats would lose big in the fall midterm elections, and that Obama was looking more like one-term President Jimmy Carter than two-termer Ronald Reagan, who also managed a difficult first-term legislative win and survived his party's bad showing in the midterms. Approval Ratings Obama is exuding confidence since the health care bill passed, but his approval ratings as of April 1 remain unchanged from the beginning of the year, according to Pollster.com. What's more, just as many people disapprove of Obama's health care policy now as did so at the beginning of the year. According to the most recent numbers: Forty-eight percent of all Americans approve of Obama, and 47 disapprove. Fifty-two percent disapprove of Obama's health care policy, compared with 43 percent who approve. Stepping Back From A Precipice Those watching the re-emergent president in recent days say it's difficult to imagine that it was only weeks ago that Obama's domestic agenda had been given last rites, and pundits were preparing their pieces on a failed presidency. Obama himself had framed the health care debate as a referendum on his presidency. A loss would have "ruined the rest of his presidential term," says Darrell West, director of governance studies at the liberal-leaning Brookings Institution. "It would have made it difficult to address other issues and emboldened his critics to claim he was a failed president." The conventional wisdom in Washington after the Democrats lost their supermajority in the U.S. Senate when Republican Scott Brown won the Massachusetts seat long held by the late Sen. Edward Kennedy was that Obama would scale back his health care ambitions to get something passed. "I thought he was going to do what most presidents would have done — take two-thirds of a loaf and declare victory," says the AEI's Olsen. "But he doubled down and made it a vote of confidence on his presidency, parliamentary-style." "You've got to be impressed with an achievement like that," Olsen says. But Olsen is among those who argue that, long-term, Obama and his party would have been better served politically by an incremental approach to reworking the nation's health care system, something that may have been more palatable to independent voters Democrats will need in the fall. "He would have been able to show he was listening more, that he heard their concerns about the size and scope of this," Olsen says. Muscling out a win on a sweeping health care package may have invigorated the president and provided evidence of leadership, but, his critics say, it remains to be seen whether Obama and his party can reverse what the polls now suggest is a losing issue for them. Golden Boy Tested One of the questions that has trailed Obama is how he would deal with criticism and the prospect of failure, says Troy, a McGill University history professor and visiting scholar affiliated with the bipartisan Policy Center in Washington. "He is one of those golden boys who never failed in his life, and people like that are often not used to criticism and failure," Troy says. Obama and his campaign were temporarily knocked for a loop early in the 2008 presidential campaign by then-GOP vice presidential candidate Sarah Palin's "zingers," Troy says, "and Obama was thrown off balance again by the loss of the Massachusetts Senate seat." The arc of the health care debate reminded observers that Obama is not just a product of Harvard, but also of tough Chicago politics, Troy says. "You don't travel as far and as fast as Barack Obama without having a spine of steel," he says. "He has an ability to regenerate, to come back, and knows that there is no such thing as a dirty win: a win is a win" — even if it infuriates the progressive wing of the president's party, which wanted far more sweeping changes to the nation's health care system. GOP Stumbles Obama's new mojo has been abetted, in a way, by high-profile troubles at the Republican National Committee. RNC Chairman Michael Steele has been under fire over the past week for his spending on private jets and limousines, and a staffer resigned after submitting to the committee a nearly $2,000 tab for a visit by young party members to a risque Los Angeles nightclub. The disarray intensified Monday with the resignation of the committee's chief of staff, and growing anger among top GOP strategists and fundraisers. "Steele has kept Republicans off-message," says West, of Brookings. "Every story about RNC spending is one less story about their views on health care at a time when news coverage has shifted in a more favorable direction." The distraction continued Monday when detractors accused Steele of playing the race card after he told ABC News that as an African American, he, like Obama, is being held to a higher standard. White House Spokesman Robert Gibbs, when asked about Steele's assertion, said the RNC chairman's problem "isn't the race card, it's the credit card." The controversy, Olsen says, hasn't been good for the Republicans' preparations for elections in terms of money and organization. But he doesn't view it as "a voter issue." How Win Translates When Reagan won his tough legislative battle in the early 1980s, it was over tax cuts, something voters saw as directly related to the then-dismal economy. Obama has long made a case for health care reform as a big piece of economic reform, but it's a difficult argument to make to voters, Olsen says, particularly when many of the health care law's major provisions don't go into effect for another four years. But observers like Troy say they believe that though initially unrelated, a boost in employment among Americans would encourage voters to look more favorably on the health care overhauls. "The perceived success of health care legislation rides on job creation," Troy says. Economists have recently declared the nation's recession, which began in 2007, over. But the unemployment rate has remained stubbornly at just under 10 percent. "I think he understands he's in a crucial period of his presidency," Olsen says. "He's taken a lot of risks, and there's not immediate rewards." Obama faces continuing tests on other big domestic issues, including Wall Street reform, the economy and climate change, as well as myriad foreign policy challenges ranging from testy relations with Israel and uncertainties about Iran's nuclear capabilities, to wars in Iraq and Afghanistan. Late last month, the administration and Russia agreed to a new nuclear arms treaty that is expected to be signed Thursday in advance of an international summit in Washington. The world is waiting, Troy says, to see how the president's renewed confidence plays out on the international stage. But the newly invigorated president continues to encourage voters to wait and see what his efforts produce.

**Obama legalizes pot as an October surprise**

Mark **Whittington**, 6-14-**2012**, writer and computer analyst residing in Houston Obama’s October Surprise Could Be Legalizing Pot, Yahoo! News, p. http://news.yahoo.com/obamas-october-surprise-could-legalizing-pot-191100768.html, accessed 9-10-2012

The Atlantic Wire believes that it has hit upon President Obama's surefire October Surprise to change his political fortunes andget him re-electedfor a second term. That October surprise would be for him to support the legalization of pot. This last-minute gambit has an advantage to starting a war, being that no one would get killed. The theory is that young voters,disenchanted with Obama because of the fact they are still living in their parents' garage three years after graduation and can't get a job, will be motivated to turn out for him because he supports legalized dope smoking. The Washington Post related David Maraniss' claims of Barack Obama being a pothead during his high school days. The gambit would also answer Penn Jillette's recent rant on the hypocrisy of Obama, a self-admitted former doper, enforcing drug laws that put people like he used to be in jail. The idea that Obama can get potheads motivated enough to turn off "The Daily Show," get off the couch, and go to the polls is a very charming one. To be sure, people voting while stoned could explain a lot of election results -- the re-election of Jerry Brown as governor of California comes to mind. But the legalized pot gambit has some pitfalls. Millions of people, likely more than who toke while laughing hysterically at Bill Maher, are against legalized drug use. Rasmussen suggested that a plurality of 47 percent of Americans favor legalizing marijuana and taxing it, which makes the say yes to drugs gambit just a little tempting to a president facing defeat in November. But such a move could be turned back on Obama fairly quickly. Mitt Romney, whose skill at the political riposte has become well known, would have lots of fun with an Obama legalize dope initiative. What next, he will ask. Selling crystal meth to school kids from vending machines? And if Obama proposed taxing pot at the same time, Romney would think that the good lord really does want him to be president. The conservative base likes few things less, besides gays getting married, than legalized dope and raising taxes, even on legalized dope. What, Obama would ask, does this have to do with a bad economy? One hope would be left for Obama: a stimulus package for pot growers. It may be his only hope.

**Election too far off — Black Swans**

**PBS ’12**

(“Black swan events”, 9-7-2012, <http://www.pbs.org/wnet/need-to-know/video/video-black-swan-events/14768/>)

Finally, it was more than 130 years ago that cartoonist Thomas Nast popularized the symbols that have defined the two parties ever since: the Democratic donkey and the Republican elephant. But this year, and in fact back across many election years, the most significant animal may be…a swan. Specifically, a black swan. As coined by author Nassim Taleb in his books, “Fooled by Randomness” and then “The Black Swan,” it refers to a highly unlikely, unanticipated event that, when it happens produces hugely consequential results. Like the global financial meltdown just weeks before the 2008 presidential election. That “black swan” had a huge political impact as well. Remember: within two days of each other in September 2008, Lehmann Brothers collapsed; and AIG was saved from extinction by an $85 billion bailout. As a result, the stock market lost hundreds and hundreds of points. With that, every assumption of the 2008 campaign, every premise that had governed two years of that campaign, was rendered “inoperative.” Many Republicans still believe that, but for that meltdown, McCain might have won–or at least, made it a lot closer. But it’s hardly the only example. Again and again, random, sometimes shocking events have reshaped campaigns at every level. Most dramatic was the assassination of Robert Kennedy in 1968, moments after he declared victory in the California primary. We’ll never know if he would have won the nomination or election–but he was clearly in contention; his death made the nomination of Hubert Humphrey inevitable. Sudden death has reshaped other campaigns: most recently, in 2002, when Minnesota Senator Paul Wellstone was killed in a plane crash 11 days before Election Day. Former Vice President Walter Mondale replaced him on the ticket, and lost to Norm Coleman; giving the Republicans a crucial Senate seat. But it’s not just death that arrives on the Black Swan. Go back to 1960, when Richard Nixon was actively competing for the black vote against John Kennedy. In late October, Martin Luther King, Jr was arrested in Georgia on a highly questionable parole violation, and locked up in a rural jail; fears for his safety rose. On successive days, John Kennedy called King’s wife, and Robert Kennedy called a local judge to ask about bail. When King was released, his father–an influential black minister who had endorsed Nixon–reportedly because he feared a Catholic in the White House–switched his support to JFK. When you look at how close the vote was in key states with large black populations–one per cent in New Jersey, two per cent in Michigan, a virtual tie in Illinois–it’s not too much to say that those phone calls elected John Kennedy. What Black Swans might show up this fall? A European economic collapse? A bad stumble on the campaign trail? Something much more grim? That’s the whole point about black swans…you can’t predict them. But you’ll know ‘em when you see ‘em.”

**Romney can’t turn this into a win—he’s already come out in support of nuclear**

Wood 9/13/12

Elisa, energy columnist for AOL, “What Obama and Romney Don't Say About Energy,” <http://energy.aol.com/2012/09/13/what-obama-and-romney-dont-say-about-energy/>, AM

Fossil fuels and renewable energy have become touchy topics in this election, with challenger Mitt Romney painting President Barack Obama as too hard on the first and too fanciful about the second – and Obama saying Romney is out of touch with energy's future. But two other significant resources, nuclear power and energy efficiency, are evoking scant debate. What gives? Nuclear energy supplies about 20 percent of US electricity, and just 18 months ago dominated the news because of Japan's Fukushima Daiichi disaster – yet neither candidate has said much about it so far on the campaign trail. Romney mentioned nuclear power only seven times in his recently released white paper, while he brought up oil 150 times. Even wind power did better with 10 mentions. He pushes for less regulatory obstruction of new nuclear plants, but says the same about other forms of energy. Obama's campaign website highlights the grants made by his administration to 70 universities for research into nuclear reactor design and safety. But while it is easy to find his ideas on wind, solar, coal, natural gas and oil, it takes a few more clicks to get to nuclear energy. The Nuclear Energy Institute declined to discuss the candidates' positions pre-election. However, NEI's summer newsletter said that both "Obama and Romney support the use of nuclear energy and the development of new reactors."

**Sats key to disease monitoring**

**Harmon ‘9** (Katherine, News Reporter @ Scientific American “Satellites Used to Predict Infectious Disease Outbreaks” 8/24, <http://www.scientificamerican.com/author.cfm?id=1822>)

Rather than searching for weird weather or enemy missiles, some satellites are helping researchers to track—and predict—the spread of deadly diseases. With the pandemic spread of H1N1 swine fluand the continued advance of the H5N1 avian flu, scientists are anxious to better predict the spread of infectious diseases and are looking for new tools wherever they might be—even if that's hundreds of miles in the sky. "Ideally we could predict conditions that would result in some of these major outbreaks of cholera, malaria, even avian flu," says Tim Ford of the University of New England in Biddeford, Maine. Ford and a group of experts have co-authored a perspective paper (pdf), due out next month in Emerging Infectious Diseases, that proposes making use of environmental data—tracked via satellite—to predict disease outbreaks. "As climate changes, and even with many of our weather patterns, [it] directly affects the distribution of disease," Ford says. Hantavirus, the pulmonary disease spread by rodents, for example, has been linked to changes in precipitation. With more rainfall, vegetation increases, which then fuels rodent populations. And pinpointing an area as relevant conditions emerge—before an outbreak starts—buys precious time to spread public health messages. Satellite imaging can also help warn of cholera outbreaks, which are predicted to worsen with climate change. The satellites provide information about water surface temperatures, which are key to the spread of this waterborne disease. One study found that giving people simple preventative instructions, such as filtering water through a sari cloth, reduced cholera-related deaths by an estimated 50 percent in some areas. Remote data have already been used to map the avian flu in Asia. Xiangming Xiao, associate director of the University of Oklahoma's Center for Spatial Analysis in Norman, has been tracking likely outbreaks of this highly pathogenic flu by looking for key habitat and weather changes. The domestic duck—determined to be the main carrier of the disease—is a common inhabitant of Southeast Asia's rice paddies, and the movement of migratory birds—a secondary carrier—could be predicted based on temperatures. So using both land-use and temperature information from satellites, Xiao and his team could track the spread of the flu by estimating where the birds would be. If visual data from satellites is combined with information from radar and LiDAR, (light detecting and ranging, which provides laser-measured data about 3-D contours), Xiao explains, researchers can really hone prediction of some diseases down to a tree line. "You can look at… the transition of pasture grassland to forests," he says, habitats which determine the range of deer. "And this has very important implications for tick-borne diseases, like Lyme disease." Much of the satellite work, however, still relies on clear skies. And all of it has been dependent on quality information from willing providers, such as NASA and its Earth Observing System, the availability of which researchers hope will continue in the future. Even with the clearest NASA images, though, current methods are far from perfect. They employ complex models and incomplete information, risking false alarms and missed outbreaks. The satellite data are still just a portion of the equation. They allow researchers to start "standing back and looking at the picture from a distance," Ford says. He and others are heavily reliant on ground-based measurements and observations. Xiao notes that, "the in situ observations are still very, very important. So the key is to combine those together—that's a real challenge." To make the predictions as precise as possible takes understanding the ecology not just of the place being studied, but also of the disease and the human population. "You see tremendous variations in different areas," says Ford of how diseases behave, and "in some sense, [that is due to] just difference in human behavior." Judging the severity of avian flu's spread from satellite imaging, for instance, requires knowing how likely certain areas are to keep domestic chickens and ducks—a practice more common in countries that consume more poultry, Xiao explains. And getting precise poultry production statistics can be a real challenge, he notes, as record-keeping can vary greatly among countries and regions. But Ford thinks that even with these limitations, "There's no reason at all we shouldn't be able to say, 'This summer is going to be a bad hantavirus year' or 'This season will likely have a high cholera risk.'" Novel or long-dormant diseases present more challenges for remote prediction. "Whether we can predict emerging diseases is a whole other question," Ford says, especially as their vectors or risk factors might take time to assess. And some diseases that spread among people might turn out to be nearly impossible to predict using satellite and environmental data beyond what researchers already know about seasonal cycles, like that for the seasonal flu. And, the nonseasonal H1N1 flu, for example, "is probably going to be more to do with human patterns [and] rapid transport between countries" than environmental changes that can be mapped, Ford says. Predicting infectious diseases is a crucial step in curbing them, Ford notes. "With all our medical advances and our advances in sanitation…we still have not been able to grapple with diseases," he says. But he is hopeful for the future of satellite-based prediction—even as it becomes a greater necessity in a changing climate and globalized world. "There's really nowhere on the globe that a pathogen can really remain isolated," he says.

**Extinction**

Yu ‘9 (Victoria, “Human Extinction: The Uncertainty of Our Fate,” Dartmouth Journal of Undergraduate Science, May 22, <http://dujs.dartmouth.edu/spring-2009/human-extinction-the-uncertainty-of-our-fate>)

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

**Satellite imagery key to save coral reef ecosystems**

Robinson ‘10 (Ian, 2010, Discovering the Ocean from Space [electronic resource] The unique applications of satellite oceanography / by Ian S. Robinson., BA and MA Mechanical Sciences, Cambridge University, PhD Engineering Magneto-hydrodynamics, University of Warwick, 1973, Higher and Senior Scientific Officer, Institute of Oceanographic Sciences, Bidston, Lecturer, senior lecturer and reader, University of Southampton Department of Oceanography, Head of Department of Oceanography, Professor, University of Southampton School of Ocean and Earth Science, Professorial Fellow, Ocean and Earth Science, University of Southampton)

However, there is one aspect of reef biology in which the wider overview provided by satellite oceanography techniques has become essential, and important enough to require this subsection to itself. This is the issue of coral bleaching, and the role that satellite monitoring of sea surface temperature (SST) plays in identifying regions where reefs are at risk of bleaching. Corals are underwater animals that attach themselves to stony substrates. The order of corals known as stony corals, or scleractinians, are found as large colonies of individual coral polyps, each of which produces limestone deposits. Over the years these deposits have created the large reef systems found in shallow tropical and temperate seas, which provide a unique habitat for rich and complex ecosystems (see, e.g., pp. 117–141 in Barnes and Hughes, 1999). Corals thrive by hosting within their cells symbiotic algae called Zooxanthellae, which provide the coral with oxygen and organic compounds resulting from photosynthesis, while themselves obtaining from the coral carbon dioxide and other chemical compounds needed for photosynthesis. The algae give coral reefs their rich coloration and the symbiotic relationship is essential for the health of the whole reef ecosystem. Coral bleaching is the name given to the situation when corals are subject to physiological stress and respond by ejecting the zooxanthellae. The departure of the algae is visually evident because corals lose the pigments that give them their yellow or brown coloration. In this case the white limestone substrate that the corals have deposited shows through the translucent cells of the polyps which then appear pale or even white. If the stress is quickly removed the algae return within a few weeks and the corals recover, but if the stress is prolonged for many weeks the corals will die and continue to appear stark white. The loss of live corals eventually causes damage to the whole reef ecosystem**.** Consequently coral-bleaching events pose a serious threat that is taken seriously by marine environmental managers.

**Coral reefs prevent extinction**

**Philippine Daily Inquirer ‘2** [“REEFS UNDER STRESS”, 12-10, L/N]

The artificial replacement of corals is a good start. Coral reefs are the marine equivalent of rainforests that are also being destroyed at an alarming rate not only in the Philippines but all over the world. The World Conservation Union says reefs are one of the "essential life support systems" necessary for human survival, homes to huge numbers of animals and plants. Dr. Helen T. Yap of the Marine Science Institute of the University of the Philippines said that the country's coral reefs, together with those of Indonesia and Papua New Guinea, contain the biggest number of species of plants and animals. "They lie at the center of biodiversity in our planet," she said.

**Decline causes Pakistani desintegration**

**Brzezinski 12**, National Security Advisor under US President Jimmy Carter [“8 Geopolitically Endangered Species: Meet the weaker countries that will suffer from American decline,” Foreign Policy Issue January/February, <http://www.foreignpolicy.com/articles/2012/01/03/8_geopolitically_endangered_species?page=0,0>]

Although Islamabad is armed with 21st-century nuclear weapons and held together by a professional late 20th-century army, the majority of Pakistan is still pre-modern, rural, and largely defined by regional and tribal identities. Conflict with India defines Pakistan's sense of national identity, while the forcible division of Kashmir sustains a shared and profound antipathy. Pakistan's political instability is its greatest vulnerability, and a decline in U.S. power would reduce America's ability to aid Pakistan's consolidation and development. Pakistan could then transform into a state run by the military, a radical Islamic state, a state that combined both military and Islamic rule, or a "state" with no centralized government at all. At stake: Nuclear warlordism; a militant Islamic, anti-Western, nuclear-armed government similar to Iran's; regional instability in Central Asia, with violence potentially spreading to China, India, and Russia.

**Nuclear war**

**Pitt, 9** - a New York Times and internationally bestselling author of two books: "War on Iraq: What Team Bush Doesn't Want You to Know" and "The Greatest Sedition Is Silence." (5/8/09, William, “Unstable Pakistan Threatens the World,” http://www.arabamericannews.com/news/index.php?mod=article&cat=commentary&article=2183)

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But a suicide bomber in Pakistan rammed a car packed with explosives into a jeep filled with troops today, killing five and wounding as many as 21, including several children who were waiting for a ride to school. Residents of the region where the attack took place are fleeing in terror as gunfire rings out around them, and government forces have been unable to quell the violence. Two regional government officials were beheaded by militants in retaliation for the killing of other militants by government forces. As familiar as this sounds, it did not take place where we have come to expect such terrible events. This, unfortunately, is a whole new ballgame. It is part of another conflict that is brewing, one which puts what is happening in Iraq and Afghanistan in deep shade, and which represents a grave and growing threat to us all. Pakistan is now trembling on the edge of violent chaos, and is doing so with nuclear weapons in its hip pocket, right in the middle of one of the most dangerous neighborhoods in the world.The situation in brief: Pakistan for years has been a nation in turmoil, run by a shaky government supported by a corrupted system, dominated by a blatantly criminal security service, and threatened by a large fundamentalist Islamic population with deep ties to the Taliban in Afghanistan. All this is piled atop an ongoing standoff with neighboring India that has been the center of political gravity in the region for more than half a century. The fact that Pakistan, and India, and Russia, and China all possess nuclear weapons and share the same space means any ongoing or escalating violence over there has the real potential to crack open the very gates of Hell itself.

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Recently, the Taliban made a military push into the northwest Pakistani region around the Swat Valley. According to a recent Reuters report: The (Pakistani) army deployed troops in Swat in October 2007 and used artillery and gunship helicopters to reassert control. But insecurity mounted after a civilian government came to power last year and tried to reach a negotiated settlement. A peace accord fell apart in May 2008. After that, hundreds — including soldiers, militants and civilians — died in battles. Militants unleashed a reign of terror, killing and beheading politicians, singers, soldiers and opponents. They banned female education and destroyed nearly 200 girls' schools. About 1,200 people were killed since late 2007 and 250,000 to 500,000 fled, leaving the militants in virtual control. Pakistan offered on February 16 to introduce Islamic law in the Swat valley and neighboring areas in a bid to take the steam out of the insurgency. The militants announced an indefinite cease-fire after the army said it was halting operations in the region. President Asif Ali Zardari signed a regulation imposing sharia in the area last month. But the Taliban refused to give up their guns and pushed into Buner and another district adjacent to Swat, intent on spreading their rule. The United States, already embroiled in a war against Taliban forces in Afghanistan, must now face the possibility that **Pakistan could collapse** under the mounting threat of Taliban forces there. Military and diplomatic advisers to President Obama, uncertain how best to proceed, now face one of the great nightmare scenarios of our time. "Recent militant gains in Pakistan," reported The New York Times on Monday, "have so alarmed the White House that the national security adviser, Gen. James L. Jones, described the situation as 'one of the very most serious problems we face.'" "Security was deteriorating rapidly," reported The Washington Post on Monday, "particularly in the mountains along the Afghan border that harbor al-Qaeda and the Taliban, intelligence chiefs reported, and there were signs that those groups were working with indigenous extremists in Pakistan's populous Punjabi heartland. The Pakistani government was mired in political bickering. The army, still fixated on its historical adversary India, remained ill-equipped and unwilling to throw its full weight into the counterinsurgency fight. But despite the threat the intelligence conveyed, Obama has only limited options for dealing with it. Anti-American feeling in Pakistan is high, and a U.S. combat presence is prohibited. The United States is fighting Pakistan-based extremists by proxy, through an army over which it has little control, in alliance with a government in which it has little confidence." It is believed Pakistan is currently in possession of between 60 and 100 nuclear weapons. Because Pakistan's stability is threatened by the wide swath of its population that shares ethnic, cultural and religious connections to the fundamentalist Islamic populace of Afghanistan, fears over what could happen to those nuclear weapons if the Pakistani government collapses are very real. "As the insurgency of the Taliban and Al Qaeda spreads in Pakistan," reported the Times last week, "senior American officials say they are increasingly concerned about new vulnerabilities for Pakistan's nuclear arsenal, including the potential for militants to snatch a weapon in transport or to insert sympathizers into laboratories or fuel-production facilities. In public, the administration has only hinted at those concerns, repeating the formulation that the Bush administration used: that it has faith in the Pakistani Army. But that cooperation, according to officials who would not speak for attribution because of the sensitivity surrounding the exchanges between Washington and Islamabad, has been sharply limited when the subject has turned to the vulnerabilities in the Pakistani nuclear infrastructure." "The prospect of turmoil in Pakistan sends shivers up the spinesof those U.S. officials charged with keeping tabs on foreign nuclear weapons," reported Time Magazine last month. "Pakistan is thought to possess about 100 — the U.S. isn't sure of the total, and may not know where all of them are. Still, if Pakistan collapses, the U.S. military is primed to enter the country and secure as many of those weapons as it can, according to U.S. officials. Pakistani officials insist their personnel safeguards are stringent, but a sleeper cell could cause big trouble, U.S. officials say." In other words, a shaky Pakistan spells trouble for everyone, especially if America loses the footrace to secure those weapons in the event of the worst-case scenario. If Pakistani militants ever succeed in toppling the government, several very dangerous events could happen at once. Nuclear-armed India could be galvanized into military action of some kind, as could nuclear-armed China or nuclear-armed Russia. If the Pakistani government does fall, and all those Pakistani nukes are not immediately accounted for and secured, the specter (or reality) of loose nukes falling into the hands of terrorist organizations could place the **entire world on a collision course with unimaginable disaster**. We have all been paying a great deal of attention to Iraq and Afghanistan, and rightly so. The developing situation in Pakistan, however, needs to be placed immediately on the front burner. The Obama administration appears to be gravely serious about addressing the situation. So should we all.

**Decline causes a crisis of confidence in South Korea**

**Brzezinski 12**, National Security Advisor under US President Jimmy Carter [“8 Geopolitically Endangered Species: Meet the weaker countries that will suffer from American decline,” Foreign Policy Issue January/February, <http://www.foreignpolicy.com/articles/2012/01/03/8_geopolitically_endangered_species?page=0,0>]

The United States has been the guarantor of South Korea's security since it was attacked in 1950 by North Korea, with Soviet and Chinese collusion. Seoul's remarkable economic takeoff and democratic political system testify to the success of U.S. engagement. Over the years, however, North Korea has staged a number of provocations against South Korea, ranging from assassinations of its cabinet members to the 2010 sinking of the South Korean warship Cheonan. So America's decline would confront South Korea with painful choices: either accept Chinese regional dominance and further reliance on China to rein in the nuclear-armed North, or seek a much stronger, though historically unpopular, relationship with Japan out of shared democratic values and fear of aggression from Pyongyang and Beijing. At stake: Military and economic security on the Korean Peninsula; a general crisis of confidence in Japan and South Korea regarding the reliability of existing American commitments.

**Korean conflict cause extinction**

**Hayes & Hamel-Green, 10** – \*Executive Director of the Nautilus Institute for Security and Sustainable Development, AND \*\* Executive Dean of the Faculty of Arts, Education and Human Development act Victoria University (1/5/10, Executive Dean at Victoria, “The Path Not Taken, the Way Still Open: Denuclearizing the Korean Peninsula and Northeast Asia,” http://www.nautilus.org/fora/security/10001HayesHamalGreen.pdf)

The international community is increasingly aware that cooperative diplomacy is the most productive way to tackle the multiple, interconnected global challenges facing humanity, not least of which is the increasing proliferation of nuclear and other weapons of mass destruction. **Korea and Northeast Asia are instances where risks of nuclear proliferation and actual nuclear use arguably have increased in recent years**. This negative trend is a product of continued US nuclear threat projection against the DPRK as part of a general program of coercive diplomacy in this region, North Korea’s nuclear weapons programme, the breakdown in the Chinese-hosted Six Party Talks towards the end of the Bush Administration, regional concerns over China’s increasing military power, and concerns within some quarters in regional states (Japan, South Korea, Taiwan) about whether US extended deterrence (“nuclear umbrella”) afforded under bilateral security treaties can be relied upon for protection. The consequences of failing to address the proliferation threat posed by the North Korea **developments, and related political and economic issues,** are serious, not only for the Northeast Asian region but **for the whole international community**. At worst, there is the possibility of nuclear attack1, **whether** by intention, miscalculation, or merely accident, **leading to the resumption of Korean War hostilities**. On the Korean Peninsula itself, key population centres are well within short or medium range missiles. The whole of Japan is likely to come within North Korean missile range. Pyongyang has a population of over 2 million, Seoul (close to the North Korean border) 11 million, and Tokyo over 20 million. Even a limited nuclear exchange would result in a holocaust of unprecedented proportions. But the catastrophe within the region would not be the only outcome. New research indicates that even a limited nuclear war in the region would rearrange our global climate far more quickly than global warming. Westberg draws attention to new studies modelling the effects of even a limited nuclear exchange involving approximately 100 Hiroshima-sized 15 kt bombs2 (by comparison it should be noted that the United States currently deploys warheads in the range 100 to 477 kt, that is, individual warheads equivalent in yield to a range of 6 to 32 Hiroshimas).**The studies indicate that the soot from the fires produced would lead to a decrease in global temperature by 1.25 degrees** Celsius for a period of 6-8 years.3 In Westberg’s view: That is not global winter, but **the nuclear darkness will cause a deeper drop in temperature than at any time during the last 1000 years.** The temperature over the continents would decrease substantially more than the global average. A decrease in rainfall over the continents would also follow…**The period of nuclear darkness will cause much greater decrease in grain production than 5% and it will continue for many years...hundreds of millions of people will die from hunger**…To make matters even worse, **such amounts of smoke injected into the stratosphere would cause a huge reduction in the Earth’s protective ozone.**4 These, of course, are not the only consequences. **Reactors might also be targeted, causing further mayhem and downwind radiation effects, superimposed on a smoking, radiating ruin left by nuclear next-use**. Millions of refugees would flee the affected regions. **The direct impacts, and the follow-on impacts on the global economy via ecological and food insecurity, could** make the present global financial crisis pale by comparison. How the great powers, especially the nuclear weapons states respond to such a crisis, and in particular, whether nuclear weapons are used in response to nuclear first-use, could make or break the global non proliferation and disarmament regimes. **There could be many unanticipated impacts on regional and global security relationships5, with** subsequent nuclear breakout **and geopolitical turbulence, including possible loss-of-control over fissile material or warheads in the chaos of nuclear war, and** aftermath chain-reaction affects involving other potential proliferant states. The Korean nuclear proliferation issue is not just a regional threat but a global one that warrants priority consideration from the international community.