# \*\*\*\*1AC\*\*\*\*

## Plan text: The United States federal government should substantially increase loan guarantees for small modular thermal reactors.

# Contention One is Proliferation

## Nuclear power is increasing globally – demand ensures it’ll be large reactors

**Banks et al, Foreign Policy Energy Security Initiative nonresident fellow, 12-16**

(John P. “Nuclear Power in Developing Countries? Let's Talk about It.” 12-16. <http://www.brookings.edu/research/opinions/2012/12/16-nuclear-energy-banks-massy>. Accessed: 1/1/2013. ADC)

 While the developed world gets cold feet on nuclear … of others are seriously considering nuclear power, but commitments are pending.

## This will result in breakout proliferation-asymmetries undermine deterrence and ensure nuclear war-safeguards are key.

 (Fast/breakout, checks US influence, miscalc risk (small difference/opaqueness)

**Sokolski, Nonproliferation Policy Education Center Executive Director, 09**

(Henry, June 1, 2009, “Avoiding a Nuclear Crowd”, http://www.hoover.org/publications/policy-review/article/5534, 10/3/12, atl)

Finally, several new nuclear weapons … of this, however, is inevitable.

## US construction is key to solve-SMR’s would out compete other models and a strong domestic industry ensures maintenance of the global gold standard.

**Miller, Bipartisan Policy Co-Chair for the Nuclear Initiative, 12**

(Dr. Warren F. “Pete” e-, Former DOE Assistant Secretary for Nuclear Energy, Senator Pete Domenici, July 2012, “Challenges and Opportunities Facing Nuclear Energy in the United States”, http://bipartisanpolicy.org/sites/default/files/Leadership%20in%20Nuclear%20Energy%20Markets.pdf, 8/14/12, atl)

Several other countries, by contrast, have … development, and deployment (RD&D) programs.

## The plan causes other suppliers to model US practices-ensures no proliferation.

**Sokolski, Nonproliferation Policy Education Center Executive Director, 11**

(Henry, “The Post-Fukushima Arms Race?”, Foreign Policy, July, 29, 2011,http://www.foreignpolicy.com/articles/2011/07/29/the\_post\_fukushima\_arms\_race?print=yesandhidecomments=yesandpage=full, 10/9/12, atl)

A Japanese decision to resist temptation and … has reluctantly in the past.

## Other countries follow the US lead-ensures they’ll pick SMR’s and implement safety measures

**Lieberman, American Physical Society senior government relations specialist, 11**

(Jodi, November 15, 2011 “Nonproliferation, Congress, and Nuclear Trade: Plus ça change, plus c’est la même chose” http://csis.org/files/publication/111116\_nonproliferation\_congress\_and\_nucleartrade.pdf)

 U.S. Nonproliferation Influence While 123 … summit will be held in South Korea in 2012.

## Proliferation causes nuclear war-crisis escalation, aggression, saving face, delegation and launch on warning guarantee it.

Kroenig, Georgetown University Government assistant professor, 12

(Matthew, Assistant Professor of Government at Georgetown University and Stanton Nuclear Security Fellow at Council on Foreign Relations, “The History of Proliferation Optimism: Does It Have A Future?,” 5-26-12, http://www.npolicy.org/article.php?aid=1182andrtid=2, accessed 10-2-12, mtf)

The proliferation optimist position… less-resolved opponents to back down.

## Status quo nuclear power will be based off Chinese designs-guarantees accidents and meltdowns

**Tu, Carnegie Energy and Climate Program senior associate, 12**

(Kevin Jianjun. “China’s Nuclear Crossroads.” 3-11. <http://carnegieendowment.org/2012/03/11/china-s-nuclear-crossroads>. Accessed: 9/30/2012. ADC)

 It’s first important to acknowledge that … energy-thirsty China can’t afford to make.

## Nuclear accidents wreck biodiversity

Mousseau, USC biology professor, 2011

(TA, “Conservation consequences of Chernobyl and other nuclear accidents”, Biological Conservation Volume 144, Issue 12, December 2011, Pages 2787–2798, Science Direct, ldg)

The explosion at the Chernobyl nuclear power … in species when they are rare.

**Extinction**

**Daily et al, Professor, Department of Biological Sciences Stanford, 7**

(11-19, Gretchen, Senior Fellow, Woods Institute for the Environment Director, Center for Conservation Biology Director, Interdisciplinary Program in Environment and Resources Chair, The Natural Capital Project, “ECOSYSTEM SERVICES: Benefits Supplied to Human Societies by Natural Ecosystems,” <http://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/ForestEconomics/Economics-Daily97.pdf>) atw

In addition to the production of goods, **…**beings trying to colonize the moon.

# Contention Two is Warming

**Newest and most rigorous studies conclude warming is anthropogenic – no alt causes**

**Muller, University of California-Berkeley physics professor, 12**

(Richard A., former MacArthur Foundation fellow, "The Conversion of a Climate-Change Skeptic," 7-28-12, http://www.nytimes.com/2012/07/30/opinion/the-conversion-of-a-climate-change-skeptic.html?pagewanted=all, accessed 8-10-12, mtf)

Call me a converted skeptic. Three years … about what can and should be done.

**Failure to solve warming causes extinction – geological history proves**

**Bushnell, NASA Langley Research Center chief scientist, 10**

(Dennis M. has a MS in mechanical engineering, won the Lawrence A. Sperry Award, AIAA Fluid and Plasma Dynamics Award, the AIAA Dryden Lectureship, and is the recipient of many NASA Medals for outstanding Scientific Achievement and Leadership, "Conquering Climate Change," The Futurist 44. 3, May/Jun 2010, ProQuest, accessed 10-3-12, mtf)

Unless we act, the next century could see … sound, they're actually conservative.

**Ocean acidification destroys marine biodiversity and leads to extinction**

**Romm, MIT Physics PhD, 10**

(Joe, Climate Progress editor, Senior Fellow at the American Progress, Acting Assistant Secretary of Energy for Energy Efficiency and Renewable Energy during the Clinton Administration, PhD in Physics from the Massachusetts Institute of Technology, "Nature Geoscience study: Oceans are acidifying 10 times faster today than 55 million years ago when a mass extinction of marine species occurred," 2-18-10, http://thinkprogress.org/climate/2010/02/18/205525/ocean-acidification-study-mass-extinction-of-marine-life-nature-geoscience/?mobile=nc#more-19529, accessed 10-3-12, mtf)

Marine life face some of the worst impacts. We … **carbon dioxide emissions is now**.

**Sea level rise causes extinction – even small rises matter**

**Sato, Daily Galaxy contributing editor, 8**

Rebecca, Contributing Editor at DailyGalaxy.com, former Head Writer at Freedom FastTrack “Can Changes in Sea Level Cause Periods of Mass Extinction?—A Galaxy Exclusive,” 6-19-08, http://www.dailygalaxy.com/my\_weblog/2008/06/changes-in-sea.html, accessed 10-3-12, mtf)

For years scientists have been trying to … induce. We, as a society, are not.”

**Other nations will model US investment – it’s a bellwether of nuclear tech**

**Adamantiades et al., ICG Aeolian Energy, 9**

(A. Adamantiades, ICG Properties is a real estate development firm; and I. Kessides, The World Bank, "Nuclear power for sustainable development: Current status and future prospects," Energy Policy Volume 37, Issue 12, December 2009, Science Direct, accessed 8-5-12, mtf)

This paper describes the current status and … **other parts of the world**.

**Large-scale nuclear power transition solves warming – assumes resource and time restraints**

**Knapp et al., University of Zagreb professor, 10**

(Vladimir Knapp, Dubravko Pevec, and Mario Matijević, Faculty of Electrical Engineering and Computing, Department of Applied Physics, University of Zagreb in Croatia, "The potential of fission nuclear power in resolving global climate change under the constraints of nuclear fuel resources and once-through fuel cycles," Energy Policy Volume 38, Issue 11, November 2010, Science Direct, accessed 8-22-12, mtf)

In this study, we have investigated the …strategies and for public acceptance of nuclear energy.

**Global commercialization key to check developing countries’ emissions**

**Kessides and Kuznetsov, World Bank chief economist, 12**

(Ioannis N., Development Research Group and The World Bank; and Vladimir, Consultant at The World Bank, "Small Modular Reactors for Enhancing Energy Security in Developing Countries," Sustainability 2012, 4.8, http://www.mdpi.com/2071-1050/4/8/1806/htm, accessed 9-29-12, mtf)

Increasing concerns related to energy … resistance, and reduced financial risk.

**Only the aff solves – alternative sources are of insufficient scope**

**Loudermilk, Institute for National Strategic Studies research associate, 11**

(Micah J., 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," IAGS Journal of Energy Security, May 2011 Issue, 5-31-11, 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, accessed 9-29-12, mtf)

Nuclear vs. Alternatives: a realistic picture …expansion of the nation’s nuclear energy portfolio.

**No risk of link turns – complete nuclear power chain significantly reduces CO2 emissions**

**Adamantiades et al., ICG Aeolian Energy, 9**

(A. Adamantiades, ICG Properties is a real estate development firm; and I. Kessides, The World Bank, "Nuclear power for sustainable development: Current status and future prospects," Energy Policy Volume 37, Issue 12, December 2009, Science Direct, accessed 8-5-12, mtf)

2.3. Global climate change In 1990 a major … the environmental effects of fossil fuel pollutants.

# Contention Three is Solvency

## Capitalization is key to nuclear commercialization-only the federal government can leverage the funds necessary

Bennett, Vice President for Public Affairs, Third Way, 10

(Matt, Josh Freed is Director of the Third Way Clean Energy initiative, Jeremy Ershow is a Policy Advisor at Third Way, “Breaking the Nuclear Financing Barrier,” February 10, http://content.thirdway.org/publications/265/Third\_Way\_Idea\_Brief\_-\_Breaking\_the\_Nuclear\_Financing\_Barrier.pdf, accessed 9-30-12, ara)

High financing costs stand in the … budget request to triple the loan volume.

## SMR’s can be commercialized quickly and are safe-studies prove they have multiple advantages

Kessides and Kuznetsov, World Bank chief economist, 12

(Ioannis N., Development Research Group and The World Bank; and Vladimir, Consultant at The World Bank, "Small Modular Reactors for Enhancing Energy Security in Developing Countries," Sustainability 2012, 4.8, http://www.mdpi.com/2071-1050/4/8/1806/htm, accessed 9-29-12, mtf)

SMRs offer a number of advantages that … characterized by significant economies of scale [19].

## NRC will streamline SMR’s

Sullivan, et al., partner, Hogan Lovells’ LLP, 10

(Mary Anne, partner in Hogan Lovells' energy practice in Washington, D.C., Daniel F. Stenger is a partner in Hogan Lovells' energy practice, Amy C. Roma is a senior associate in Hogan Lovells' energy practice, “Are Small Reactors the Next Big Thing in Nuclear?” 12-21-10, <http://www.elp.com/index/display/article-display/3288852302/articles/electric-light-power/volume-88/issue-6/sections/are-small-reactors-the-next-big-thing-in-nuclear.html>, accessed 9-20-12, ara)

The biggest challenge to getting SMRs … initiative through industry working groups.

## SMR’s compete with gas-better risk premium and no volatility

**Rosner, Distinguished Service Professor, Departments of Astronomy and Astrophysics, and Physics – Chicago University, 11**

(Robert e-, Senior Fellow, Computation Institute; Director, Energy Policy Institute; Enrico Fermi Institute; Harris School of Public Policy, Stephen Goldberg, Special Assistant to the Director Argonne National Laboratory, “Small Modular Reactors – Key To Future Nuclear Power Generation In The U.S.”, Energy Policy Institute at Chicago The Harris School of Public Policy Studies, 6/2/12, atl)

In both the 2004 Chicago Study and the current … for nuclear power plants.

## We have the workforce and infrastructure

**Spencer et al, Thomas A. Roe Institute for Economic Policy Studies research fellow, 11**

(Jack. “A Big Future for Small Nuclear Reactors?” Heritage Foundation. 2-02. <http://www.heritage.org/research/reports/2011/02/a-big-future-for-small-nuclear-reactors>. Accessed: 9/7/2012. ADC)

Domestic Production. Although the nuclear i… capabilities—all in the United States.

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# Warming

## CO2 increases have an overall negative effect on yields – overestimated gains and losses due to O3

Long et al., University of Illinois Department of Plant Biology, 5

(Stephen P, University of Illinois Department of Crop Science and Institute for Genomic Biology; Elizabeth A Ainsworth, USDA-Agricultural Research Service, Photosynthesis Research Unit; Andrew D.B Leakey; and Patrick B Morgan, "Global food insecurity. Treatment of major food crops with elevated carbon dioxide or ozone under large-scale fully open-air conditions suggests recent models may have overestimated future yields," Philos Trans R Soc Lond B Biol Sci., 360(1463), November 29, 2005, http://dx.crossref.org/10.1098%2Frstb.2005.1749, accessed 9-15-12, mtf)

In the absence of any physiological effect of …Wang & Mauzerall (2004) are included.

## CO2 fertilization doesn’t solve food insecurity

Füssel, Potsdam Institute for Climate Impact Research, 9

(Hans-Martin, PIK is located in Germany, "Review And Quantitative Analysis Of Indices Of Climate Change Exposure, Adaptive Capacity, Sensitivity, And Impacts," Development and Climate Change, August 17, 2009, https://openknowledge.worldbank.org/bitstream/handle/10986/9193/WDR2010\_0004.pdf?sequence=1, accessed 9-14-12, mtf)

26. Global studies on the combined effect of … that are currently food-insecure.

## Economic integration stops all conflict in Asia

**Drysdale, East Asia forum editor, 2012**

(Peter, “Asia’s economic and political interdependence”, 5-28, <http://www.eastasiaforum.org/2012/05/28/asias-economic-and-political-interdependence/>, DOA: 10-15-12, ldg)

 Despite the political and diplomatic … political pay-off from Asian integration.

# CP

## Microbubbles fail- tech has barriers AND skepticism prevents funding

Mims, Scientific American, 9

(Christopher, ""Albedo Yachts" and Marine Clouds: A Cure for Climate Change?," 10-21-09, http://www.scientificamerican.com/article.cfm?id=albedo-yachts-and-marine-clouds, accessed 1-6-13, mtf)

Edinburgh's Salter, for his part, has tested and … to the stage where I can't do very much more."

## Emissions cuts are the only way to solve warming- only way to check developing countries

Freedman, senior science writer at Climate Central, 12

(Andrew, Masters in Climate and Society from Columbia University and a Masters in Law and Diplomacy from The Fletcher School at Tufts University “Global Carbon Emissions Hit Record High, Report Finds,” 12-3-12, da 1-6-13,http://www.climatecentral.org/news/global-carbon-emissions-hit-record-high-15318, mee)

Absent significant emissions cuts …since at least 800,000 years ago.

## SMRs solve inevitable global water wars

**Palley, London School of Economics, 11**

(Reese, “The Answer: Why Only Inherently Safe, Mini Nuclear Power Plans Can Save Our World”, p. 168-71, 9/24/12, atl)

The third world has long been rent … **rock and have water gush forth**.”

**Goes nuclear**

**NASCA, 04**

[National Association for Scientific and Cultural Appreciation, “Water shortage.It’s just around the corner”, <http://www.nasca.org.uk/Strange_relics_/water/water.html>, 2/13/12, atl]

Water is one of the prime essentials … there will be no obvious answer.

# K

## Security discourse is inevitable – rejection of environmentalism cedes power to the elites

**Liftin, University of Washington Political Science Professor, 98**

(Karen T., “Constructing Environmental Security and Ecological Interdependence”, Global Governance 5 (1998), 9/1/12, atl)

It may be tempting to jettison environmental … how they construct their speech acts.

## Impacts are predictable – linear scenario analysts have empirical success

Dekker, Centre for Ethics, Law, Justice and Governance, Griffith University Professor, 11

(Sidney, February 21, 2011, “The complexity of failure: Implications of complexity theory for safety investigations”, [Safety Science](http://www.sciencedirect.com/science/journal/09257535) Volume 49, Issue 6, July 2011, Pages 939–945, 8/9/12, atl)

In the Newtonian vision of the … methods of investigation ([Shappell and Wiegmann, 2001](http://www.sciencedirect.com/science/article/pii/S0925753511000105%22%20%5Cl%20%22b0200)).

## Perm do both – Complexity theory ignores the micro activity of the situation – the perm is critical to make it effective

Dekker, Centre for Ethics, Law, Justice and Governance, Griffith University Professor, 11

(Sidney, February 21, 2011, “The complexity of failure: Implications of complexity theory for safety investigations”, [Safety Science](http://www.sciencedirect.com/science/journal/09257535) Volume 49, Issue 6, July 2011, Pages 939–945, 8/9/12, atl)

Analytic reduction cannot tell how … in the section on Newtonian science.

## Linearity might not be true but complexity isn’t 100% true either-pragmatism means you should prefer scenario planning

**Gorka et al., NDU Homeland Defense Fellows Program director, 2012**

(Sebastian, “The Complexity Trap,” Parameters, Spring, <http://www.carlisle.army.mil/USAWC/parameters/Articles/2012spring/Gallagher_Geltzer_Gorka.pdf>, DOA: 11-4-12, ldg)

These competing views of America’s national … relevant is a model in which nothing is.

# Russia DA

## Russia and China currently constructing nuclear reactors

PennEnergy, 12-7

(PennEnergy Editorial Staff, "China and Russia work together to expand nuclear power plant," 12-7-12, http://www.pennenergy.com/articles/pennenergy/2012/12/china-and-russia-work-together-to-expand-nuclear-power-plant.html, accessed 12-26-12, mtf)

The Chinese and Russian governments … units to begin operating in 2018.

## Hitachi continuing talks with Lithuania and Japan ban expected to end

Westlake, Japan Daily Press writer, 12-26

(Adam, "Hitachi maintains talks with Lithuania over nuclear power plant," 12-26-12, http://japandailypress.com/hitachi-maintains-talks-with-lithuania-over-nuclear-power-plant-2620414, accessed 12-26-12, mtf)

Japan’s Hitachi Ltd. says it has kept … reactor restarts in the near future.

## OPEC will cut production to keep prices high – fear of revenue losses

[Yetiv](http://ww2.odu.edu/%26#126;syetiv/), Old Dominion University Political Science Professor, 9-4-12

 (Steve, “Is the Energy Boom a Mirage?,” <http://www.nytimes.com/2012/09/05/opinion/is-the-energy-boom-a-mirage.html>, accessed 9-5-12, ads

Fourth, the [Organization of the Petroleum Exporting Countries](http://www.opec.org/opec_web/en/) …dissent and maintain domestic control.

## US isn’t key – growth in developing countries outweighs

Gold, WSJ staff writer, 2012

(Russell, “Drivers Cut Back on $4 Gas”, Wall Street Journal, April 28, http://online.wsj.com/article/SB10001424052748703367004576289292254881456.html, accessed 9/18/12, SLC)

After weeks of paying steadily more …on the New York Mercantile Exchange.

## Russia economy collapsing now-multiple factors overwhelm any effect of the plan

Alexandrova, ITAR-TASS, 11-7-12

(Lyudmila, “Russian economy already in crisis”, <http://indrus.in/articles/2012/11/06/russian_economy_already_in_crisis_18885.html>, DOA: 11-7-12, ldg)

The latest developments in the Russian …a powerful impetus to internal demand.”

## Demographics undermine the economy

Reuters, 11

(2-10, “No easy fix as demographics threaten Russia growth”, Accessed 10-2-11, <http://in.reuters.com/article/2011/02/10/idINIndia-54803820110210?pageNumber=2>) NJR

A gaping demographic hole will suck … the government to curb the flow of migrants.

# Hafnium DA

## Shortage inevitable—population and international growth AND recycling solves

**Rhodes, Independent Consultant on Energy and Environment Issues, 10**

(Chris, rising to become the youngest professor of physical chemistry in the U.K., writer and researcher, studied chemistry at Sussex University, October 5, 2010, “Metals Shortages Threaten Developments in Solar Energy and Nuclear Power”, http://oilprice.com/Metals/Commodities/Metals-Shortages-Threaten-Developments-In-Solar-Energy-And-Nuclear-Power.html, 10/20/12, atl)

We live on a planet with finite resources…. Uranium, 30 - 40 years. Zinc, 20 - 30 years.

## Demand increasing—multiple trends and nuclear renaissance

**Vulcan, Seeking Alpha, 11**

(Tom, March 1, 2011, “Hafnium: Small Supply, Big Applications” http://seekingalpha.com/article/255689-hafnium-small-supply-big-applications, 10/20/12, atl)

While the demand for hafnium from the … that is always being undertaken.

## US can’t project power now- it’s leaking cash

**Parent et al., Miamia political science professor, 2011**

(Joseph, “The Wisdom of Retrenchment”, Foreign Affairs, Nov/Dec, ebsco, ldg)

The trend of the last decade is …United States is leaking cash.

# \*\*\*\*1AR\*\*\*\*

# Prolif

## Short flight times, ongoing disputes, no experience and history isn’t a guide.

**Cimbala, Penn St. Political science professor, 08**

(Stephen J, “Anticipatory Attacks: Nuclear Crisis Stability in Future Asia,” Comparative Strategy, Volume 27, Issue 2 March 2008, pages 113-132, 7/31/11, atl)

The spread of nuclear weapons in Asia … avoidance of war outside of Europe.

## Prolif makes preemption likely – state uncertainty

**Knopf, Naval Postgraduate School National Security Affairs professor, 2002**

(Jeffrey, “Recasting the proliferation optimism-pessimism debate”, Security Studies, 12.1, ebsco, ldg)

The second implication of pressures to seek … could survive and strike second.

# Warming

## Their studies fail to assume O3 increases – fossil fuels spur the impact

Long et al., University of Illinois Department of Plant Biology, 5

(Stephen P, University of Illinois Department of Crop Science and Institute for Genomic Biology; Elizabeth A Ainsworth, USDA-Agricultural Research Service, Photosynthesis Research Unit; Andrew D.B Leakey; and Patrick B Morgan, "Global food insecurity. Treatment of major food crops with elevated carbon dioxide or ozone under large-scale fully open-air conditions suggests recent models may have overestimated future yields," Philos Trans R Soc Lond B Biol Sci., 360(1463), November 29, 2005, http://dx.crossref.org/10.1098%2Frstb.2005.1749, accessed 9-15-12, mtf)

Although elevated tropospheric ozone …Mauzerall (2004) may be underestimates.

**No risk of Pakistan instability or extremism- prefer our evidence**

**Shackle, NS staff writer, 11**

(Samira, "Pakistan: A Hard Country," New Statesman, 5-16-11, l/n, accessed 10-25-11, mss)

A huge amount has been written about Pakistan, … country that proliferate elsewhere.

# CP

## Upstream countries will withhold water-guarantees escalation

**Pearce, New Scientist environmental consultant, 2009**

(Fred, “A Common Source of Grievance”, 5-14, <http://seedmagazine.com/content/article/the_truth_about_water_wars/#pearce>, DOA: 11-3-12, ldg)

 Water, unlike land, is hard to “capture.” It flows. As … need for more water diplomacy.

## Ignore impact defense that doesn’t account for current tensions

**Bhalla, Reuters Staff writer, 12**

(Nita, July 23, 2012, “Thirsty South Asia's river rifts threaten "water wars"”, http://www.trust.org/alertnet/news/thirsty-south-asias-river-rifts-threaten-water-wars/, 10/11/12, atl)

As the silver waters of the Kishanganga rush through … Brahmaputra as it flows into eastern India.

## Wetlands resilient and stable.

**Tiner, UM Amherst Plant, Soil, and Insect Sciences professor, 2005**

(Ralph, In search of swampland: a wetland sourcebook and field guide, pg 106, ldg)

The nation’s wetland resources have changed … wetland losses through human actions.

**No impact- bioweapons are ineffective- even if they weren’t their record of failure deters their use**

**Stratfor**, 200**7**

["Bioterrorism: Sudden Death Overtime?" 12-22-2007, www.lebanonwire.com/0712MLN/07122212STR.asp, accessed 12-25-10, mss]

First, it must be recognized that during the past … **weapons have not been executed:** The cost is higher than the benefit.