# 1NC

### ASPEC---1NC

#### Agency discussions are essential to education about energy policy

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

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

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

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

#### VI for limits and ground---hundreds of relevant actors, from the DoE to DOD, courts, executive all conduct different energy programs and have different restrictions---failure to specify means they can reclarify that it’s any one---overstretches our research burden and wrecks 1NC strategy.

### T R&D 1NC

#### R&D isn’t T

#### Violates Energy production---it’s pre-production

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

3. SUBSIDIES THROUGH THE FUEL CYCLE

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

3.1 Preproduction

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

3.1.1 Research and Development

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

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

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

3.1.2 Resource Location

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

3.2 Production

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

#### Violates incentives---they have to provide money to the private sector---r&D is distinct

CCES 9 Center for Climate and Energy Solutions (also called c2es) “Buildings and Emissions: Making the Connection” No specific date dated, most recent citation from 2009 www.c2es.org/technology/overview/buildings

Policy Options to Promote Climate-Friendly Buildings

The mosaic of current policies affecting the building sector is complex and dynamic involving voluntary and mandatory programs implemented at all levels of government, from local to federal. Government efforts to reduce the overall environmental impact of buildings have resulted in numerous innovative policies at the state and local levels. Non-governmental organizations, utilities, and other private actors also play a role in shaping GHG emissions from buildings through third-party “green building” certification, energy efficiency programs, and other efforts.

Various taxonomies have been used to describe the policy instruments that govern buildings, typically distinguishing between regulations, financial incentives, information and education, management of government energy use, and subsidies for research and development (R&D). Each of these is broadly described below.

-Standards and codes

Regulatory policies include building and zoning codes, appliance energy efficiency standards, clean energy portfolio standards, and electricity interconnection standards for distributed generation equipment. Building codes can require a minimum level of energy efficiency for new buildings, thus mandating reductions at the construction stage, where there is the most opportunity to integrate efficiency measures. Zoning codes can provide incentives to developers to achieve higher performance. Because of regional differences in such factors as climatic conditions and building practices, and because building and zoning codes are implemented by states and localities, the codes vary considerably across the country. While substantial progress has been made over the past decade, opportunities to strengthen code requirements and compliance remain.

Appliance and equipment standards require minimum efficiencies to be met by all regulated products sold; they thereby eliminate the least efficient products from the market. Federal standards exist for many residential and commercial appliances, and several states have implemented standards for appliances not covered by federal standards (see Appliance Efficiency Standards).

-Financial incentives

Financial incentives can best induce energy-efficient behavior where relatively few barriers limit information and decision-making opportunities (e.g., in owner-occupied buildings). Financial incentives include tax credits, rebates, low-interest loans, energy-efficient mortgages, and innovative financing, all of which address the barrier of first costs. Many utilities also offer individual incentive programs, because reducing demand, especially peak demand, can enhance the utility’s system-wide performance.

-Information and education

While many businesses and homeowners express interest in making energy-efficiency improvements for their own buildings and homes, they often do not know which products or services to ask for, who supplies them in their areas, or whether the energy savings realized will live up to claims. Requiring providers to furnish good information to consumers on the performance of appliances, equipment and even entire buildings is a powerful tool for promoting energy efficiency by enabling intelligent consumer choices.

-Lead-by-example programs

A variety of mechanisms are available to ensure that government agencies lead by example in the effort to build and manage more energy-efficient buildings and reduce GHG emissions. For example, several cities and states, and federal agencies (including the General Services Administration), have mandated LEED or LEED-equivalent certification for public buildings, and the Energy Independence and Security Act of 2007 includes provisions for reduced energy use and energy efficiency improvements in federal buildings.

-Research and development (R&D)

In the long run, the opportunities for a low-greenhouse gas energy future depend critically on new and emerging technologies. Some technological improvements are incremental and have a high probability of commercial introduction over the next decade (such as low-cost compact fluorescents). Other technology advances will require considerable R&D before they can become commercially feasible (such as solid-state lighting). The fragmented and highly competitive market structure of the building sector and the small size of most building companies discourage private R&D, on both individual components and the interactive performance of components in whole buildings.

Building Technologies Center. The Oak Ridge National Laboratory’s Buildings Technology Center was established by the U.S. Department of Energy (DOE) and performs research into issues including heating and cooling equipment, thermal engineering, weatherization, building design and performance, envelope systems and materials, and power systems.

Emerging Technologies. This U.S. DOE-sponsored program develops technology that would reduce energy use in residential and commercial buildings by 60-70 percent. Technologies are in fields including solid-state lighting, space conditioning and refrigeration, building envelopes, and analysis tools and design strategies that would facilitate the development of energy efficient buildings through software and computer-based building analysis.

#### At best they’re indirect which means they’re FX---this cards draws a predictable limit and brightline

GSWH 11 Global Solar Water Heating Market Transformation and Strengthening Initiative, This publication is the result of a joint effort from the following contributors: The European Solar ThermalIndustry Federation (ESTIF), the United Nations Environment Program (UNEP) through its Division ofTechnology, Industry and Economics (DTIE) and the Global Environment Fund (GEF). "Guidelines for policy and framework conditions" No Specific Date Cited, Most Recent Citations From 2011 www.solarthermalworld.org/files/policy\_framework.pdf?download

8 Non financial incentives for solar thermal

Non Financial Incentives include all public policies that support the creation of public good, even when providing an indirect financial advantage to the solar thermal market. For instance: an awareness raising campaign financed from public money or a programme to subsidise craftsmen training or R&D, etc. Obviously, all these instruments create an indirect financial advantage for companies involved in the market and this benefit is then passed on to the users.

8.1 Solar thermal obligations

• What is a Solar Thermal Obligation (STO)?

STO are legal provisions making mandatory the installation of solar thermal systems in buildings. The obligation mainly applies to new buildings and those undergoing major refurbishment. The owner must then install a solar thermal system meeting legal requirements. Most of the existing STOs are connected to national or regional energy laws and implemented through the municipal building codes. A growing number of European municipalities, regions and countries have adopted solar thermal obligations. Already today, more than 150 million people live in regions covered by a STO.

• Benefits

A major benefit of solar thermal ordinances is their effectiveness combined with low costs and limited administrative overheads for public authorities. As part of the building permit process, the inspection with regard to the renewable energy requirement is simple and thus does not strain public finances.

The introduction of a solar thermal ordinance prevents market fluctuation caused by inconsistent incentive programmes. It provides a stable planning environment for market actors and investors, encouraging local economic growth and creating new jobs in this sector.

• Unwanted effects and flanking measures

Solar obligations have a profound effect on the solar thermal market's structure. Therefore, to maximise their benefits, they require flanking measures.

In a market where solar thermal becomes mandatory, promoters and customers will tend to question the solar systems' operation and react more negatively than in a voluntary market.

Ends users and the construction sector will often go for the cheapest possible solution, while building owners will try to circumvent the obligation through exemptions. The real impact of any regulation strongly depends on its technical parameters and control procedures.

It is vital, therefore, that the regulations adopted ensure state-of-the-art quality assurance, products, planning, installation and maintenance of the system, guaranteeing the same high level of customer satisfaction as in the current voluntary market. Poor performance of "mandatory" systems would not only undermine public acceptance of the obligation, but also, possibly, of the solar thermal technology in general.

Israel, 30 years of experience with solar thermal ordinances

Thirty years ago, Israel was the first country to pass legislation on solar thermal installations. With the second oil crisis at the end of the 1970s, members of parliament examined ways to make their country less dependent on imported energy. The result was a law, which made solar water heaters mandatory in new buildings such as residential housing, hotels, guest houses and old people's homes up to 27 metres high. The legislation entered into force in 1980.

Nowadays over 80% of Israel's households get their domestic hot water from solar rooftop heaters. A typical domestic unit consists of a 150 litre insulated storage tank and a 2 m2 collector. These hot water heaters save the country the need to import about 4% of its energy needs, and replace about 9% of the electricity production.

The law has now become redundant. More than 90% of the solar systems are installed on a voluntary basis, i.e. they are installed in existing buildings, or the systems are larger than required by the obligation.

Source: PROSTO project

8.2 Quality, standards and certification policy

The need and methods to ensure quality in the market are so important for solar thermal, that a complete guide is dedicated to this topic in the framework of the GSWH project.

Why do we need standards?

The objective of standardisation and quality assurance is to guarantee product safety and quality, as well as lower prices. At every stage of market development, the capacity of solar thermal systems to deliver the expected level of performance is a key factor. In the early stage of the market, quality issues have had long lasting devastating effects. The existence of standards is the cornerstone of quality assurance.

The actors of standards and certification

Standardisation and quality for solar thermal should be the result of a joint effort from public authorities (market regulation), the industry, the technical community and, when they are adequately organised, the end users.

• Public authorities have a key role to play in imposing stringent quality requirements and in initiating, facilitating and controlling the standardisation process.

• The industry must provide product and technical expertise. It must understand the benefits

of ensuring standardised level of quality. Public authorities should guarantee that the standards are neutral and do not favour certain products or companies.

• I t is essential to be able to rely on independent testing facilities and certification bodies. If the private initiative is not adequate, then public authorities should actively support the creation of such structures.

• Consumer organisations can bring a useful contribution to the process. Quality installation for quality products

Solar thermal products usually need to be installed. This operation can be simple to the extent that it might not require the intervention of a specialist, e.g. some termosiphons systems, but on average it should be undertaken by a professional. To guarantee performance, the quality of the installation is as important as the quality of the system. Minimum requirements in terms of training and qualification of installers should be implemented in parallel with product requirements. Public authorities should regulate in the absence of initiatives from trade and industry.

Performance and quality for a sustainable market

Performance and quality measures do not constitute flanking or accompanying measures. Framework and regulations should be developed, and relevant bodies involved from the beginning, even if this has to be imposed to the market to some extent.

The market tends to be shortsighted; industry will naturally prefer to avoid costs and regulations. The benefits of high quality regulations and market surveillance will emerge eventually and guarantee a sustainable market. Public authorities should ensure that incentives and promotion endorse quality.

8.3 Research and development, demonstration projects (definition, importance, recommendations, examples)

Solar thermal is a simple and mature technology; however, research and development are necessary to guarantee that performance will continue to improve and costs to decrease. Research and development can also contribute to adapt the technical features of products to local needs, e.g. improve water tightness in tropical areas, resistance to frost in mountainous regions. Research and development cannot proceed only from public initiative but, through public universities and public research centres, public authorities have a leading role to play.

Building up centres of technical excellence

Applied research, engineering education, development, product innovation, standardisation, testing are closely linked and there are a lot of synergies between those fields. Most of the time, the same persons will be likely to teach, test and lead research projects. A sustainable market will always require relying on a high level engineering community. Public authorities should encourage the creation of multi disciplinary technical facilities for solar thermal engineering and encourage or even impose on the industry to participate in this effort.

Importance of demonstration projects

For both promotion and technical (experimental) reasons demonstrations projects are extremely useful. Projects implementing technologies that are not market ready, but which have an important potential, will allow testing and improving the solution, gather data, monitor functioning and finally demonstrate the feasibility to the general public and the industry in order to prepare the introduction on the market.

9 Financial incentives (direct, indirect, tax incentives, low interest loans): definition, importance, recommendations, examples

Financial Incentives include any public policy giving a financial advantage to those who install a solar thermal system or that use solar thermal energy.

#### Voting issue for limits and ground---creates an unmanageable topic of new speculative tech via government research that doesn’t interact with the market

**Dyson et al, 3** - International Union for Conservation of Nature and Natural Resources (Megan, Flow: The Essentials of Environmental Flows, p. 67-68)

Understanding of the term ‘incentives’ varies and economists have produced numerous typologies. A brief characterization of incentives is therefore warranted. First, the term is understood by economists as incorporating both positive and negative aspects, for example a tax that leads a consumer to give up an activity that is an incentive, not a disincentive or negative incentive. Second, although incentives are also construed purely in economic terms, incentives refer to more than just financial rewards and penalties. They are the “positive and negative changes in outcomes that individuals perceive as likely to result from particular actions taken within a set of rules in a particular physical and social context.”80 Third, it is possible to distinguish between direct and indirect incentives, with direct incentives referring to **financial** or other inducements and indirect incentives referring to both variable and **enabling incentives**.81 Finally, incentives of any kind may be called ‘perverse’ where they work against their purported aims or have significant adverse side effects. ¶ Direct incentives lead people, groups and organisations to take particular action or inaction. In the case of environmental flows these are the same as the net gains and losses that different stakeholders experience. The key challenge is to ensure that the incentives are consistent with the achievement of environmental flows. This implies the need to compensate those that incur additional costs by providing them with the appropriate payment or other compensation. Thus, farmers asked to give up irrigation water to which they have an established property or use right are likely to require a payment for ceding this right. The question, of course, is how to obtain the financing necessary to cover the costs of developing such transactions and the transaction itself. ¶ Variable incentives are policy instruments that affect the relative costs and benefits of different economic activities. As such, they can be manipulated to affect the behaviour of the producer or consumer. For example, a government subsidy on farm inputs will increase the relative profitability of agricultural products, hence probably increasing the demand for irrigation water. Variable incentives therefore have the ability to greatly increase or reduce the demand for out-of-stream, as well as in-stream, uses of water. The number of these incentives within the realm of economic and fiscal policy is practically **limitless.**

### Immigration DA

#### Obama’s pushing comprehensive immigration reform --- it will pass, but PC’s key

Global and Mail 3-29, “A lonely GOP voice for immigration reform,” <http://www.theglobeandmail.com/news/world/a-lonely-gop-voice-for-immigration-reform/article10585603/>

The first test is already here. On Monday, at a swearing-in ceremony for 28 new citizens, President Barack Obama turned up the heat, saying “the time has come” for lawmakers to fix the country’s immigration system “once and for all.” In early April, the Senate is expected to take up a bipartisan proposal for wide-ranging immigration reform. On the to-do list: measures to increase border security; more visas for skilled workers; a guest-worker program; and a path to citizenship for millions of illegal immigrants.¶ The road ahead is difficult. But advocates note that for the first time in decades, there are strong motivations for both parties to strike a deal**.** Mr. Obama wants a major legislative accomplishment in an area where Democrats have promised change but failed to achieve it. Republicans, meanwhile, are scrambling to repair their battered standing with Hispanic voters.

#### Promoting renewables requires a substantial expenditure of political capital --- the link’s unique

Steven Cohen 3-18, Executive Director, Columbia University's Earth Institute, “Hiding Renewables Inside the 'All of the Above' Energy Strategy Won't Work,” 3-18-13, http://www.huffingtonpost.com/steven-cohen/hiding-renewables-inside\_b\_2899833.html

It is clear that no great national renewable energy project is possible with an anti-government Republican Party in charge of the U.S. House of Representatives. The basic research on alternative energy so vital to America's future will not take place until we elect a Congress willing to spend more money on science and technology research. It is useful for the president to use his executive authority to do whatever he can to fund this research and to raise to cost of global warming pollution through EPA's command and control style regulation. But this "small ball" strategy is not enough, and no one should be fooled into thinking it is.¶ As I wrote last week, the strategy of "all of the above" is not a real energy policy, but a political slogan designed to reduce political heat and in this case, squeeze a little renewable energy research through under the broad cloak of a policy that continues to promote fossil fuels.¶ If we promote every form of energy, why would anyone oppose throwing a few crumbs at alternative energy? You can almost hear the Administration pleading to industry lobbyists: "We're not some soft-minded advocates of renewable energy, we're not against fossil fuels; we're in favor of every form of energy." This may sound like pragmatic, hard-headed politics inside the beltway, but from out here it seems weak, confused and self-defeating. We're not going to transition off fossil fuels by continuing to promote their extraction and use.We need strong, direct, presidential leadership. We need a president willing to expend real political capital and take this issue on directly.¶ The world doesn't need America to lead an "all of the above" approach to energy. The intense demand for energy in the developing world is already following that strategy. China is spending money on solar. But the real money is going to fossil fuels. Coal fired power plants are being built and planned at a ferocious rate. According to the World Resources Institute:¶ "... 1,199 new coal-fired plants, with a total installed capacity of 1,401,278 megawatts (MW), are being proposed globally. These projects are spread across 59 countries. China and India together account for 76 percent of the proposed new coal power capacities."¶ There is no question that demand for energy will continue to increase, and that inadequate energy supplies would be economically devastating and politically destabilizing. It is easy to see why national leaders, like our own president, gravitate to the "all of the above" energy strategy. My point is that we do not need governments to advocate or pursue "all of the above". The free market will take care of that on its own. The only way to intervene in that market is to fund the basic research that will generate a transformative energy technology. The only way to reduce the use of fossil fuels is to develop an energy source that is cheaper and hopefully safer and cleaner than fossil fuels. Until government funds the basic research needed to develop renewable alternatives, we will have no choice but to burn fossil fuels.¶ It's certainly true that an extra $200 million a year for energy research can't hurt. Perhaps the president will find a few other billion in the military and NSF budgets to add to the fund. A little extra cash can go a long way in the hands of capable scientists. But something this important needs more attention, more rhetoric and much more money.¶ There is no single issue more important to the development of a sustainable economy than the transition to renewable energy. We have a president who seems to understand this in his brain, but his awareness has not made the journey to his gut. In contrast to President Obama's understanding of the issue and his sense that it requires government action, we see Republicans in Congress denying climate science and delegitimizing **any role for government** in addressing our energy needs. While one would think that our nation's economic well-being might stimulate some consensus on this issue, we see either a cynical denial of scientific fact or a level of scientific illiteracy that is truly terrifying.¶ The approach followed by some political leaders, such as President Obama and Governor Andrew Cuomo is to give climate deniers a pass: "Even if you don't think we have a climate problem we should certainly... (fill in the blank):\_\_\_\_\_\_\_\_\_\_\_\_\_ protect our infrastructure from flooding; pursue all energy sources we can find; invest in energy efficiency, and so on. They and their advisors will argue that we need to be politically realistic, and build consensus. Most of the time I agree with that approach; but the private market forces behind fossil fuels are strong and growing. The demand for energy in the developing world, and our own deep dependence on energy here in America ensures a growing demand for energy. Americans can get more efficient and stop wasting energy; but no one around here is going to go off the grid and power down. The climate problem will only get worse if we do not transition off of fossil fuels.¶ The political power of energy companies is an intense and central part of the environment of policy decision-making in Washington. It may well be that the Obama team has decided to invest its political capital elsewhere, where the probability of success seems greater. It would take unusual courage and skill to pursue government energy policy that resists this economic and political force. It may be too much to expect President Obama to push back against this force, but without strong and constant presidential leadership, rapid change is unlikely.

#### Ag industry’s collapsing now---immigration’s key

Alfonso Serrano 12, Bitter Harvest: U.S. Farmers Blame Billion-Dollar Losses on Immigration Laws, Time, 9-21-12, http://business.time.com/2012/09/21/bitter-harvest-u-s-farmers-blame-billion-dollar-losses-on-immigration-laws/

The Broetjes and an increasing number of farmers across the country say that a complex web of local and state anti-immigration laws account for acute labor shortages. With the harvest season in full bloom, stringent immigration laws have forced waves of undocumented immigrants to flee certain states for more-hospitable areas. In their wake, thousands of acres of crops have been left to rot in the fields, as farmers have struggled to compensate for labor shortages with domestic help.¶ “The enforcement of immigration policy has devastated the skilled-labor source that we’ve depended on for 20 or 30 years,” said Ralph Broetje during a recent teleconference organized by the National Immigration Forum, adding that last year Washington farmers — part of an $8 billion agriculture industry — were forced to leave 10% of their crops rotting on vines and trees. “It’s getting worse each year,” says Broetje, “and it’s going to end up putting some growers out of business if Congress doesn’t step up and do immigration reform.”¶ (MORE: Why Undocumented Workers Are Good for the Economy)¶ Roughly 70% of the 1.2 million people employed by the agriculture industry are undocumented. No U.S. industry is more dependent on undocumented immigrants. But acute labor shortages brought on by anti-immigration measures threaten to heap record losses on an industry emerging from years of stiff foreign competition. Nationwide, labor shortages will result in losses of up to $9 billion, according to the American Farm Bureau Federation.

#### Extinction

Lugar 2k | Chairman of the Senator Foreign Relations Committee and Member/Former Chair of the Senate Agriculture Committee (Richard, a US Senator from Indiana, is Chairman of the Senate Foreign Relations Committee, and a member and former chairman of the Senate Agriculture Committee. “calls for a new green revolution to combat global warming and reduce world instability,” pg online @ http://www.unep.org/OurPlanet/imgversn/143/lugar.html)

In a world confronted by global terrorism, turmoil in the Middle East, burgeoning nuclear threats and other crises, it is easy to lose sight of the long-range challenges. But we do so at our peril. One of the most daunting of them is meeting the world’s need for food and energy in this century. At stake is not only preventing starvation and saving the environment, but also world peace and security. History tells us that states may go to war over access to resources, and that poverty and famine have often bred fanaticism and terrorism. Working to feed the world will minimize factors that contribute to global instability and the proliferation of [WMDs] weapons of mass destruction. With the world population expected to grow from 6 billion people today to 9 billion by mid-century, the demand for affordable food will increase well beyond current international production levels. People in rapidly developing nations will have the means greatly to improve their standard of living and caloric intake. Inevitably, that means eating more meat. This will raise demand for feed grain at the same time that the growing world population will need vastly more basic food to eat. Complicating a solution to this problem is a dynamic that must be better understood in the West: developing countries often use limited arable land to expand cities to house their growing populations. As good land disappears, people destroy timber resources and even rainforests as they try to create more arable land to feed themselves. The long-term environmental consequences could be disastrous for the entire globe. Productivity revolution To meet the expected demand for food over the next 50 years, we in the United States will have to grow roughly three times more food on the land we have. That’s a tall order. My farm in Marion County, Indiana, for example, yields on average 8.3 to 8.6 tonnes of corn per hectare – typical for a farm in central Indiana. To triple our production by 2050, we will have to produce an annual average of 25 tonnes per hectare. Can we possibly boost output that much? Well, it’s been done before. Advances in the use of fertilizer and water, improved machinery and better tilling techniques combined to generate a threefold increase in yields since 1935 – on our farm back then, my dad produced 2.8 to 3 tonnes per hectare. Much US agriculture has seen similar increases. But of course there is no guarantee that we can achieve those results again. Given the urgency of expanding food production to meet world demand, we must invest much more in scientific research and target that money toward projects that promise to have significant national and global impact. For the United States, that will mean a major shift in the way we conduct and fund agricultural science. Fundamental research will generate the innovations that will be necessary to feed the world. The United States can take a leading position in a productivity revolution. And our success at increasing food production may play a decisive humanitarian role in the survival of billions of people and the health of our planet.

### LNG Exports---1NC

#### DOE will limit LNG exports now because of concerns about domestic supply and demand---the plan resolves those concerns and triggers exports

Charles Ebinger et al 12, a senior fellow and director of the Energy Security Initiative at the Brookings Institution; Kevin Massy, Assistant Director of the Energy Security Initiative at Brookings; and Govinda Avasarala, Senior Research Assistant in the Energy Security Initiative at Brookings, May 2012, “Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas,” http://www.brookings.edu/~/media/research/files/reports/2012/5/02%20lng%20exports%20ebinger/0502\_lng\_exports\_ebinger.pdf

From the perspective of the U.S. federal government, the issue of implications is viewed in terms of “public interest.” Under existing legislation, exports of natural gas to countries with a free trade agreement (FTA) with the United States are, by law, deemed to be in the public interest and authorization is required to be given without modification or delay. Projects looking for authorization to export LNG to countries without an FTA, which account for roughly 96 percent of current global LNG demand, are required to be approved by the Secretary of Energy unless, after public hearing, the Department of Energy finds that such exports are not in the public interest.80 Although the legal definition of “public interest” is not explicitly given in existing legislation, according to public statements by officials from the Department of Energy, “public interest” includes:

• Adequate domestic natural gas supply; • Domestic demand for natural gas proposed for export; • Economic impacts of exports (on GDP, consumers, and industry); • U.S. energy security; • Job creation; • U.S. balance of trade; • International considerations; • Environmental considerations; • Consistency with DoE’s policy of promoting market competition through free negotiation of trade81

The first two of these criteria were addressed in Part I. The remainder focus on the various domestic and international implications of U.S. LNG exports.

Domestic Implications

The domestic implications of U.S. LNG exports include their impact on natural gas prices, natural gas price volatility, jobs and competitiveness, and on overall energy security.

Price of domestic natural Gas

The domestic price impact of natural gas exports will be a significant factor in determining whether or not the United States should export LNG. While it is generally acknowledged that a domestic price increase will result from largescale LNG exports, the size of the price increase is the subject of debate, with a number of studies suggesting a range of possible outcomes. The important considerations when analyzing the results and conclusions of the various existing studies are the assumptions and models that are used when making price forecasts. Below are the results and methodologies of five major pricing studies done by the EIA and three consultancies: Deloitte, ICF International, and Navigant Consulting, which published two studies.

2012 Energy information Administration study In January 2012, the EIA published a study entitled “Effect of Increased Natural Gas Exports on Domestic Energy Markets.”82 The study, conducted at the request of the Office of Fossil Energy of the Department of Energy, analyzed four different export scenarios across four different resource base or economic assumptions to project price responses to LNG exports. In addition to a “baseline” scenario, where no LNG is exported, the EIA model considered four different export scenarios: • A low export/slow growth scenario, where 6 bcf/day of LNG is exported, phased in at a rate of 1 bcf/day per year; • A low export/rapid growth scenario, where 6 bcf/day of LNG is exported, phased in at a rate of 3 bcf/day per year; • A high export/slow growth scenario, where 12 bcf/day of LNG is exported, phased in at a rate of 1 bcf/day per year; • A high export/rapid growth scenario, where 12 bcf/day of LNG is exported, phased in at a rate of 3 bcf/day per year. Given the uncertainty over the actual size of the shale gas resource base and the future growth of the U.S. economy, each of these scenarios (both “baseline” and export) were applied to four alternate background cases: • A reference case, based on the EIA’s 2011 Annual Energy Outlook; • A low-shale estimated ultimate recovery (EUR) case, in which shale gas production from new, undrilled wells is 50 percent below the reference case scenario; • A high-shale EUR case, in which shale gas production from new, undrilled wells is 50 percent higher than the reference case; • A high economic growth case, in which U.S. GDP grows at 3.2 percent as opposed to the 2.7 percent assumed in the reference case. Given the range of assumptions, the range of results was unsurprisingly wide. The results range from a 9.6 percent increase (from $3.56 to $3.90/ mcf) in domestic natural gas prices in 2025 due to exports (in the case of high shale gas recovery, low export volumes and a slow rate of export growth) to a 32.5 percent increase (in the case of low shale gas recovery, high export volumes and a high rate of export growth). The percentage premium for domestic natural gas prices in 2025 for each scenario relative to the baseline scenario price estimate is detailed in table 3. In addition to the price premium for exporting natural gas that exists in each case, the EIA study projected a short-term spike in natural gas prices as a result of LNG exports. As figure 7 below illustrates, in 2015, the first year that LNG exports occur, domestic natural gas prices rise rapidly until total export capacity is reached. In the “lowrapid” scenario prices peak in 2016, after the 6 bcf/day of export capacity is built over 2 years; in the “high-slow” scenario, natural gas prices peak in 2026, after the 12 bcf/day of export capacity is built over 12 years. The immediate jump in price becomes more pronounced in the scenarios where LNG export capacity increases quickly. In the “low-rapid” scenario, the price of natural gas peaks at nearly 18 percent above the baseline case; in the “high-rapid” scenario, natural gas prices peak at 36 percent above the baseline case. This price impact is exacerbated in the Low Shale EUR and High Macroeconomic Growth cases, as LNG exports further tighten domestic natural gas markets. In the most extreme example, the high-rapid scenario for exports in a Low Shale EUR case, the price for natural gas peaks at more than 50 percent than the baseline case.83 There are two factors that should be considered when interpreting the results of this price impact study. The first is the assumption regarding the rate at which LNG could be exported. The results of EIA’s analysis represent an extreme scenario for LNG exports. In the existing LNG market, it is particularly unlikely that either the “low-rapid” or the “high-rapid” scenarios would materialize. The former assumption stipulates that the United States would export 6 bcf/day of LNG by 2016. Given that, at the time of writing, only one facility has been approved to export 2.2 bcf/day to nonFTA countries starting in 2015, it is unlikely that another three plants would be approved and built in such a short time frame.84 The latter scenario, that the United States would be exporting 12 bcf/ day of LNG by 2018, suggests that in the next several years, the United States would grow from exporting negligible volumes of LNG to having roughly one-third of the global LNG export capacity. Not only would this supply growth outpace growth in global LNG demand, but this capacity addition would also have to compete with roughly 11 bcf/day of Australian-origin LNG that is expected to hit the market around the same time.85 The second issue is the model’s assumptions for incremental investment in natural gas production as a result of increased export capacity. The spike in price depicted in figure 7 occurs because investment from gas producers lags additional demand. In the model, producers respond to, rather than anticipate, additional demand. For this reason, prices peak once the export capacity is filled, before steadily decreasing. In reality, the expectation of future demand would likely induce gas producers to invest in additional production before incremental demand occurs. As a result, the increase in prices would likely begin earlier and peak at a lower level than suggested by the model. deloitte study An earlier study released in November 2011 from the Deloitte Center for Energy Solutions highlighted the producer-response in its model. In addition to finding that LNG exports would produce a smaller increase in gas prices than the EIA report suggests, the Deloitte study points out that “producers can develop more reserves in anticipation of demand growth, such as LNG exports. There will be ample notice and time in advance of the exports to make supplies available.”86 Using a dynamic model, in which production increased in anticipation of new demand, the Deloitte study found that 6 bcf/day of exports of LNG would result in, on average, a 1.7 percent increase (from $7.09 to $7.21/MMBtu) in the price of natural gas between 2016 and 2035. Further, the Deloitte study noted that there would be regional variations to the increase in natural gas prices resulting from LNG exports. As most of the proposed liquefaction terminals are expected to be on the Gulf Coast, the price of Henry Hub gas, which is the key benchmark for natural gas from the Gulf Coast, will increase by $0.22/ MMBtu by 2035 as a result of U.S. LNG exports. This is more than double the price increase projected in regions further away from the LNG export terminals. In New York and Illinois, natural gas prices are projected to increase by less than $0.10/MMBtu. This is particularly important in the Northeast, which historically experiences some of the highest natural gas prices in the country, but will benefit from the development and consumption of natural gas from the nearby Marcellus shale play. other studies Three other studies of note have analyzed the price impacts of U.S. LNG exports. In August 2010, Navigant Consulting found that 2 bcf/day of LNG exports would cause a price increase of between 7 and 7.9 percent from 2015 to 2035 relative to a scenario with no gas exports. ICF International found in August 2011 that 6 bcf/day of exports would result in an 11 percent ($0.64/MMBtu) increase in natural gas prices over the same period.87 More recently, Navigant released another study that analyzed the impact of two separate export scenarios. The first scenario modeled the impact of 3.6 bcf/day of LNG exports from three terminals in North America: Sabine Pass in Louisiana, Kitimat in British Columbia, and Coos Bay in Oregon. The second scenario modeled the impact of 6.6 bcf/day of LNG exports from the three aforementioned export projects and 2 bcf/day of added exports from the Gulf Coast and 1 bcf/day from Maryland.88 This Navigant study found that 6.6 bcf/day of LNG exports would result in a 6 percent ($0.35/MMBtu) increase in natural gas prices from 2015 to 2035. As with the EIA and Deloitte studies, the results of both Navigant and ICF’s studies must be analyzed in the context of their respective methodologies and assumptions. Navigant’s first study uses a more static supply model, which, unlike dynamic supply models, does not fully take account of the effect that higher prices have on spurring additional production. As a result, it takes a conservative estimate of supply growth potential. The report acknowledges that the price outcomes modeled in its analysis “establish the upper range of impacts that exports […] might have on natural gas prices.”89 This study also did not factor in the reemergence of the industrial sector as a major consumer of natural gas following the shale gas “revolution.” The study assumes that natural gas consumption by the industrial sector will decline by 0.3% per year to 2035. By contrast, the EIA model assumes that industrial sector demand will increase by roughly 1% per year over the same period.90 The ICF study factors in various levels of production response from an increase in price. Under its 6 bcf/day export scenario, the price impact ranges from a $0.52/ MMBtu increase in a more responsive drilling activity scenario to a $0.75/MMBtu increase in a less responsive drilling activity scenario. which study is right? Given that these studies forecast natural gas prices two decades into the future, it is difficult to determine which study is most accurate. (table 4 shows a comparison of the price impact forecasts of the various models.) However, policymakers would benefit from having a better understanding of the results that are generated from each report. This includes choosing the most relevant results from each report. For instance, following the release of the EIA study, many commentators were quick to highlight that natural gas prices could increase by more than 50 percent as a result of LNG exports. However, this ignored the assumptions behind this number: it was based on the price of natural gas in one year under the most extreme assumptions of exports and domestic resource base. A more comprehensive analysis should include an assessment of the average price impact from 2015 to 2035. When distinguishing between the various studies, policymakers should identify which assumptions most resemble the existing natural gas market and its likely direction, and which models are most reflective of the complex nature of domestic and global natural gas trade. Assuming realistic volumes of natural gas exports as well as a reasonable supply response by natural gas producers are important considerations. It is important to note that the supply curves in the various studies reflect different interpretations of the economics of marginal production. The Power sector and industrial sector Part I indicated that the power-generation and industrial sectors would account for most of the demand for newly available natural gas resources. As shown above, LNG exports are likely to increase domestic prices of natural gas, suggesting negative consequences for these two competing sectors. In their analyses, both Deloitte and EIA found that the majority—63 percent, according to both studies—of the exported natural gas will come from new production as opposed to displaced consumption from other sectors. By contrast, between 17 and 38 percent of supply of natural gas for export would be met by reduced demand, as higher prices pushes some domestic consumers to use less gas.

In the power generation and industrial sectors, the price impacts of LNG exports are likely to have modest impacts. In the power sector, natural gas has historically been used as a back up to coal and nuclear base-load generation. For such gas used at the margin, the increase in electricity prices as a result of LNG exports would be limited by its competitiveness relative to other fuels: as soon as it becomes more expensive than the alternative for back up generation, power producers will substitute away from gas.91 According to ICF International, a $0.64/MMBtu increase in the price of natural gas would result in an electricity price increase of between $1.66 and $4.97/megawatt-hour (MWh), depending on how often gas is used as the marginal fuel for electricity. Deloitte estimates that the price increase of electricity would not be more than $1.65/MWh. 92 EIA estimates that electricity price impacts will be marginal as well (between $1.40/MWh and $2.90/MWh) except in the “highrapid” export scenario.93 The EIA Annual Energy Outlook 2011 estimates that, without exporting LNG, the average price of electricity (across all fuels) in 2035 will be $92/MWh.94

In the longer term, natural gas is itself likely to be used for more base-load generation. The rapid increase in shale gas production, coupled with the retirements of as much as 50 gigawatts (GW) of coal-fired electricity due to plant age or inability to adhere to possibly forthcoming EPA regulations is likely to increase the demand for natural gas in the power sector. According to some analysts, the near-term demand caused by the retirements of the oldest and least efficient coal-fired power plants could result in an additional natural gas demand of 2 bcf/day.95 Given the lack of environmentally and economically viable alternatives, a moderate increase in gas prices is unlikely to result in a large move away from natural gas, although increased costs will be transferred to customers. Natural gas consumption in the power sector has been considered economic at prices much higher than those resulting from LNG exports in even the highest price-impact projections. Even prior to the shale gas “revolution,” when natural gas prices were high, natural gas demand was increasing in the power sector. The EIA Annual Energy Outlook 2005— published in a year when average well head prices were over $7/MMBTU—projected that natural gas demand in the electricity sector would increase by 70 percent between 2003 and 2015.96

Unlike the power sector, which continued to build natural-gas fired generation during a period of increasing gas prices, the industrial sector was negatively affected by growing natural gas import dependence, high gas prices, and gas price volatility. Between 2000 and 2005, the price of natural gas increased by 99 percent and LNG imports more than doubled.97 By 2005, the ratio of the price of oil to the price of natural gas was approximately 6:1, just below the 7:1 oil-to-gas price ratio at which U.S. petrochemical and plastics producers are globally competitive.98 That same year Alan Greenspan, then-Chairman of the Federal Reserve, noted that because of natural gas price increases “the North American gas-using industry [was] in a weakened competitive position.”99 Since then the price of natural gas has collapsed. In 2011, the oil-to-natural gas price ratio was more than 24:1. In 2012 it has been even higher. The decline in natural gas prices has galvanized the industrial sector. A joint study by PwC and the National Association for Manufacturers, an industry trade group, found that the development of shale gas could save manufacturers as much as $11.6 billion per year in feedstock costs through 2025.100 New investments in petrochemical and plastics producing facilities are occurring throughout the East and Southeast, largely predicated on the availability of inexpensive natural gas. Opponents of LNG exports contend that such investments would be deterred in the future as a result of increases in the price of natural gas. However, the evidence suggests that the competitive advantage of U.S. industrial producers relative to its competitors in Western Europe and Asia is not likely to be affected significantly by the projected increase in natural gas prices resulting from LNG exports. As European and many Asian petrochemical producers use oil-based products such as naphtha and fuel oil as feedstock, U.S. companies are more likely to enjoy a significant cost advantage over their overseas competitors. Even a one-third decline in the estimated price of crude oil in 2035 would result in an oil-to-gas ratio of 14:1.101 There is also the potential for increased exports to help industrial consumers. Ethane, a liquid byproduct of natural gas production at several U.S. gas plays, is the primary feedstock of ethylene, a petrochemical product used to create a wide variety of products. According to a study by the American Chemistry Council, an industry trade body, a 25 percent increase in ethane production would yield a $32.8 billion increase in U.S. chemical production. By providing another market for cheap dry gas, LNG exports will encourage additional production of natural gas liquids (NGL) that are produced in association with dry gas. According to the EIA, ethane production increased by nearly 30 percent between 2009 and 2011 as natural gas production from shale started to grow substantially. Ethane production is now at an alltime high, with more than one million barrels per day of ethane being produced.102 Increased gas production for exports results in increased production of such natural gas liquids, in which case exports can be seen as providing a benefit to the petrochemical industry.

natural gas price volatility

A major concern among domestic end users of natural gas is the possibility of an increase in natural gas price volatility resulting from an increase in U.S. LNG exports. As figure 8 demonstrates, the price volatility experienced during the 2000s was the highest the domestic gas market has experienced in the past three decades.

The volatility of the natural gas market in the 2000s was largely caused by a tight supply-demand balance. Natural gas demand increased substantially as the U.S. economy grew and natural gas was viewed as environmentally preferable to coal for power generation. This increase in demand coincided with a reduction in domestic supply and an increased reliance on imports. The recent surge in U.S. natural gas production has resulted in less market volatility since 2010. According to EIA, the standard deviation of the price of natural gas (a general statistical indicator of volatility) between 2010 and 2011 was one-third what it was during the 2000s.103 Potential exports of U.S. LNG concerns some domestic consumers for two principal reasons: greater volatility in domestic natural gas prices; and exposure of domestic natural gas prices to higher international prices resulting in a convergence between low U.S. prices and high international prices.

There is an insufficient amount of data and quantitative research on the relationship between domestic natural gas price volatility and LNG exports. However, certain characteristics of the LNG market are likely to limit volatility. LNG is bound by technical constraints: it must be liquefied and then transported on dedicated tankers before arriving at terminals where a regasification facility must be installed. Liquefaction facilities have capacity limits to how much gas they can turn into LNG. If they are operating at or close-to full capacity, such facilities will have a relatively constant demand for natural gas, therefore an international price or supply shock would have little impact on domestic gas prices. Moreover, unlike oil trading, in which an exporter—theoretically—sells each marginal barrel of production to the highest bidder in the global market, the capacity limit on LNG production and export means that LNG exporters have an infrastructure-limited demand for natural gas leaving the rest of the natural gas for domestic consumption. As most LNG infrastructure facilities are built on a project finance basis and underpinned by long-term contracts, this demand can be anticipated by the market years in advance, reducing the likelihood of volatility. The macroeconomy and jobs The macroeconomic and job implications of LNG exports depend on two principal factors: the gains from trade from exploiting pricing differentials and inefficiencies of the global market; and the employment implications of those gains, higher domestic natural gas prices, and greater domestic natural gas production. The Department of Energy has commissioned a study on both the macroeconomic and employment implications of U.S. LNG exports, which will be released later this year. This study will provide a qualitative assessment of the implications of LNG exports to the U.S. economy and employment. LNG exports are likely to be a net benefit to the U.S. economy, although probably not a significant contributor in terms of total U.S. GDP. Exports of U.S. natural gas will take advantage of the benefits of the existing producer’s surplus resulting from the pricing differentials between the natural gas markets in the United States, Europe, and Asia. Contractual terms will determine how this surplus is shared between U.S. sellers and foreign buyers.104 The benefit of this trade will likely outweigh the cost to domestic consumers of the increase in the price of natural gas as most of the natural gas demanded by exports will come from new natural gas production as opposed to displacing existing production from domestic consumers. On the other hand, LNG exports from the United States are likely to put marginal upward pressure on the relative value of the U.S. dollar. In March 2012, Citigroup released a report on North American hydrocarbon production that included a model of the macroeconomic impact of U.S. oil and gas exports. The Citi analysis found that oil and gas exports would cause a nearly two percent decline in the current account deficit by 2020, but that the exchange rate implications would be modest. By 2020, the U.S. dollar would appreciate by between 1.6 and 5.4 percent.105 The implications of LNG exports on job creation are similarly difficult to quantify. Other than temporary construction jobs created by the need to build liquefaction capacity, pipelines, and other ancillary infrastructure, the operation of the liquefaction facility will likely provide little permanent employment benefit. As outlined in the section on price impacts above, as much of the gas for export will come from new production, rather than the displacement of consumption in other sectors, the negative economic, and therefore jobrelated, effects on those sectors is likely to be limited. Beyond the labor required for additional gas production to satisfy LNG exports, the net impact of LNG exports is likely to be minimal. Further upstream, the job potential may be greater. By increasing domestic natural gas production, employment from additional oil and gas producers will increase, as will the demand for manufacturers of equipment for oil and gas production, gathering, and transportation. domestic energy security

Aside from the price impact of potential U.S. LNG exports, a major concern among opponents is that such exports would diminish U.S. “energy security”; that exports would deny the United States of a strategically important resource. The extent to which such concerns are valid depends on several factors, including the size of the domestic resource base, and the liquidity and functionality of global trade. As Part I of this report notes, geological evidence suggests that the volumes of LNG export under consideration would not materially affect the availability of natural gas for the domestic market. Twenty years of LNG exports at the rate of 6 bcf/day, phased in over the course of 6 years, would increase demand by approximately 38 tcf. As presented in Part I, four existing estimates of total technically recoverable shale gas resources range from 687 tcf to 1,842 tcf; therefore, exporting 6 bcf/day of LNG over the course of twenty years would consume between 2 and 5.5 percent of total shale gas resources. While the estimates for shale gas reserves are uncertain, in a scenario where reserves are perceived to be lower than expected, domestic natural gas prices would increase and exports would almost immediately become uneconomic. In the long-term, it is possible that U.S. prices and international prices will converge to the point at which they settle at similar levels. In that case, the United States would have more than adequate import capacity (through bi-directional import/export facilities) to import gas when economic.

A further gas-related consideration with regard to energy security is the effects of increased production of associated natural gas with the increasing volumes of U.S. unconventional oil. As the primary energy-security concern for the United States related to oil, the application of fracking and horizontal drilling in oil production is reducing U.S. oil import dependence, while simultaneously producing substantial volumes of natural gas, which, given the relative economics of oil and gas, is effectively delivered at zero (or, in the case of producers who have to invest in equipment to manage flaring and venting, negative) cost. To the extent that associated gas from unconventional oil production is used for LNG export, it can be seen as a consequence of—rather than a threat to—increased U.S. energy security. international implications The international implications of LNG exports from the United States can be divided into pricing, geopolitics, and environment. international Pricing As discussed in Part I, the global LNG market is informally separated into three markets: North America, the Atlantic Basin (mostly Europe), and the Pacific Basin (including Japan, South Korea, Taiwan, China, and India). These markets are separated because of important technical differences that impact the pricing structure for LNG in each market. The North American natural gas market is competitive and prices are traded in a transparent and open market. The Atlantic Basin is dominated by European LNG consumers such as the United Kingdom, Spain, France, and Italy, and is a hybrid of a competitive U.K. market that was liberalized in the mid-1990s and a Continental European market that is dominated by oil-linked, take-or-pay contracts. In recent years, the U.K. hub, the National Balancing Point (NBP), has traded at a premium to the U.S. hub, the Henry Hub. The Pacific Basin is a more rigid market that depends heavily on oilindexed contracts that are more expensive than those used in the Atlantic Basin. While they have no central trading hub, the Pacific Basin consumers such as Japan and South Korea (which is implementing its recently-signed free-trade agreement with the United States) currently import LNG based on a pricing formula known informally as the Japan Crude Cocktail, the average price of custom-cleared oil imports into Tokyo. Many Pacific Basin contracts have a built-in price floor and price ceiling depending on the price of oil.106 Without exporting any natural gas, the U.S. shale gas “revolution” has already had a positive impact on the liquidity of global LNG markets. Many LNG cargoes that were previously destined for gas-thirsty U.S. markets were diverted and served spot demand in both the Atlantic and Pacific Basins. The increased availability of LNG cargoes has helped create a looser LNG market for other consumers (see figure 9). This in turn has helped apply downward pressure to the terms of oillinked contracts resulting in the renegotiation of some contracts, particularly in Europe. Increased availability of LNG cargoes also accelerated a recent trend of increasing reliance of consumers on spot LNG markets. In 2010 short-term and spot contracts represented 19 percent of the total LNG market, up from only a fraction one decade earlier.107 In this case, increasing demand for spot cargoes indicates that consumers are taking advantage of spot prices that are lower than oilindexed rates. LNG exports will help to sustain market liquidity in what looks to be an increasingly tight LNG market beyond 2015 (see figure 10). Should LNG exports from the United States continue to be permitted, they will add to roughly 10 bcf/day of LNG that is expected to emerge from Australia between 2015 and 2020. Nevertheless, given the projected growth in demand for natural gas in China and India and assuming that some of Japan’s nuclear capacity remains offline, demand for natural gas will outpace the incremental supply. This makes U.S. LNG even more valuable on the international market. Although it will be important to global LNG markets, it is unlikely that the emergence of the United States as an exporter of LNG will change the existing pricing structure overnight. Not only is the market still largely dependent on long-term contracts, the overwhelming majority of new liquefaction capacity emerging in the next decade (largely from Australia) has already been contracted for at oil-indexed rates.108 The incremental LNG volumes supplied by the United States at floating Henry Hub rates will be small in comparison. But while U.S. LNG will not have a transformational impact, by establishing an alternate lower price for LNG derived through a different market mechanism, U.S. exports may be central in catalyzing future changes in LNG contract structure. As previously mentioned, this impact is already being felt in Europe. A number of German utilities have either renegotiated contracts or are seeking arbitration with natural gas suppliers in Norway and Russia. The Atlantic Basin will be a more immediate beneficiary of U.S. LNG exports than the Pacific Basin as many European contracts allow for periodic revisions to the oil-price linkage.109 In the Pacific Basin this contractual arrangement is not as common and most consumers are tied to their respective oil-linkage formulae for the duration of the contract.110 Despite the increasing demand following the Fukushima nuclear accident, however, Japanese LNG consumers are actively pursuing new arrangements for LNG contracts.111 There are other limits to the extent of the impact that U.S. LNG will have on global markets. It is unlikely that many of the LNG export facilities under consideration will reach final investment decision. Instead, it is more probable that U.S. natural gas prices will have rebounded sufficiently to the point that exports are not commercially viable beyond a certain threshold. (figure 11 illustrates the estimated costs of delivering LNG to Japan in 2020.) This threshold, expected by many experts to be roughly 6 bcf/day by 2025, is modest in comparison to the roughly 11 bcf/day of Australian LNG export projects that have reached final investment decision and are expected to be online by 2020. Also, the impact of U.S. LNG exports could be limited by a number of external factors that will have a larger bearing on the future of global LNG prices. For instance, a decision by the Japanese government to phase-out nuclear power would significantly tighten global LNG markets and probably displace any benefit provided by U.S. LNG exports. Conversely, successful and rapid development of China’s shale gas reserves would limit the demand of one of the world’s fastest-growing natural gas consumers. However, to the extent that U.S. LNG exports can help bring about a more globalized pricing structure, they will have economic and geopolitical consequences. Geopolitics A large increase in U.S. LNG exports would have the potential to increase U.S. foreign policy interests in both the Atlantic and Pacific basins. Unlike oil, natural gas has traditionally been an infrastructure-constrained business, giving geographical proximity and political relations between producers and consumers a high level of importance. Issues of “pipeline politics” have been most directly visible in Europe, which relies on Russia for around a third of its gas. Previous disputes between Moscow and Ukraine over pricing have led to major gas shortages in several E.U. countries in the winters (when demand is highest) of both 2006 and 2009. Further disagreements between Moscow and Kiev over the terms of the existing bilateral gas deal have the potential to escalate again, with negative consequences for E.U. consumers. The risk of high reliance on Russian gas has been a principal driver of European energy policy in recent decades. Among central and eastern European states, particularly those formerly aligned with the Soviet Union such as Poland, Hungary, and the Czech Republic, the issue of reliance on imports of Russian gas is a primary energy security concern and has inspired energy policies aimed at diversification of fuel sources for power generation. From the U.S. perspective such Russian influence in the affairs of these democratic nations is an impediment to efforts at political and economic reform. The market power of Gazprom, Russia’s state-owned gas monopoly, is evident in these countries. Although they are closer to Russia than other consumers of Russian gas in Western Europe, many countries in Eastern and Central Europe pay higher contract prices for their imports, as they are more reliant on Russian gas as a proportion of their energy mixes. In the larger economies of Western Europe, which consume most of Russia’s exports, there are efforts to diversify their supply of natural gas. The E.U. has formally acknowledged the need to put in place mechanisms to increase supply diversity. These include market liberalization approaches such as rules mandating third-party access to pipeline infrastructure (from which Gazprom is demanding exemption), and commitments to complete a single market for electricity and gas by 2014, and to ensure that no member country is isolated from electricity and gas grids by 2015.112 Despite these formal efforts, there are several factors retarding the E.U.’s push for a unified effort to reduce dependence on Russian gas. National interest has been given a higher priority than collective, coordinated E.U. energy policy: the gas cutoffs in 2006 and 2009 probably contributed to the acceptance of the Nord Stream project, which carries gas from Russia into Germany. Germany’s decision to phase out its fleet of nuclear reactors by 2022 will result in far higher reliance on natural gas for the E.U.’s biggest economy. The environmental imperative to reduce carbon emissions—codified in the E.U.’s goal of essentially decarbonizing its power sector by the middle of century—mean that natural gas is being viewed by many as the short-to medium fuel of choice in power generation. Finally, the prospects for European countries to replicate the unconventional gas “revolution” that has resulted in a glut of natural gas in the United States look uncertain. Several countries, including France and the U.K., have encountered stiff public opposition to the techniques used in unconventional gas production, while those countries, such as Poland and Hungary, that have moved ahead with unconventional-gas exploration have generally seen disappointing early results. Collectively, these factors suggest that the prospects for reduced European reliance on Russian gas appear dim. The one factor that has been working to the advantage of advocates of greater European gas diversity has been the increased liquidity of the global LNG market, discussed above. Russia’s dominant position in the European gas market is being eroded by the increased availability of LNG. Qatar’s massive expansion in LNG production in 2008, coupled with the rise in unconventional gas production in the United States as well as a drop in global energy demand due to the global recession, produced a global LNG glut that saw many cargoes intended for the U.S. market diverted into Europe. As mentioned previously, with an abundant source of alternative supply, some European consumers, mainly Gazprom’s closest partners, were able to renegotiate their oil-linked, takeor-pay contracts with Gazprom. As figure 10 illustrates, however, in the wake of the Fukushima natural disaster and nuclear accident in Japan and a return to growth in most industrialized economies, the LNG market is projected to tighten considerably in the short-term, potentially returning market power to Russia. However, there is a second, structural change to the global gas market that may have more lasting effects to Russia’s market power in the European gas market. LNG is one of the fastest growing segments of the energy sector. The growth of the LNG market, both through long-term contract and spot-market sales, is likely to put increasing pressure on incumbent pipeline gas suppliers. A significant addition of U.S. LNG exports will accelerate this trend. In addition to adding to the size of the market, U.S. LNG contracts are likely to be determined on a “floating” basis, with sales terms tied to the price of a U.S. benchmark such as Henry Hub, eroding the power of providers of long-term oil linked contract suppliers such as Russia. While U.S. LNG will not be a direct tool of U.S. foreign policy—the destination of U.S. LNG will be determined according to the terms of individual contracts, the spot-price-determined demand, and the LNG traders that purchase such contracts—the addition of a large, market-based producer will indirectly serve to increase gas supply diversity in Europe, thereby providing European consumers with increased flexibility and market power. Increased LNG exports will provide similar assistance to strategic U.S. allies in the Pacific Basin. By adding supply volumes to the global LNG market, the U.S. will help Japan, Korea, India, and other import-dependent countries in South and East Asia to meet their energy needs. The desire on the part of Pacific Basin countries for the U.S. to become a gas supplier to the region has been underlined by the efforts of the Japanese government, which has attempted to secure a free-trade agreement waiver from the United States to allow exports. As with oil price-linked Russian gas contracts in Eu-rope, U.S. LNG exports linked to a floating Henry Hub benchmark, have the potential to weaken the market power of incumbent LNG providers to Asia, increasing the negotiating power of consumers and decreasing the price. As U.S. foreign policy undergoes a “pivot to Asia,” the ability of the U.S. to provide a degree of increased energy security and pricing relief to LNG importers in the region will be an important economic and strategic asset. Beyond the basin-specific considerations of U.S. LNG exports, they would provide a source of predictable natural gas supply that is relatively free from unexpected production or shipping disruption. With Qatar representing roughly one-third of the global LNG market, a blockade or military intervention in the Strait of Hormuz or a direct attack on Qatar’s liquefaction facilities by Iran would inflict chaos on world energy markets. While the United States government will be unable to physically divert LNG cargoes to specific markets or strategic allies that are most affected (gas allocation will be made by the market players), additional volumes of LNG on the world market will benefit all consumers. international Environmental implications Proposed LNG exports from the United States have encountered domestic opposition on environmental grounds. As outlined in Part I, natural gas production causes greenhouse gas emissions in the upstream production process through leakages, venting, and flaring. The greenhouse gas footprint of shale gas production has been the subject of vigorous debate, with some studies suggesting that methane from the production process leads to shale gas having a higher global warming impact than that of other hydrocarbons including coal. While the methodology underlying such studies has been widely criticized, there is no doubt that leakage and venting of natural gas is a serious negative environmental consequence of natural gas production and transportation: EPA has estimated that worldwide leakages and venting volumes were 3,353.5 bcf in 2010.113 By contrast, some advocates of U.S. exports of LNG maintain that they have the potential to bring global environmental benefits if they are used to displace more carbon-intensive fuels. According to the IEA, natural gas in general has the potential to reduce carbon dioxide emissions by 740 million tonnes in 2035, nearly half of which could be achieved by the displacement of coal in China’s power-generation portfolio. Natural gas—in the form of LNG—also has the potential to displace more carbon-intensive fuels in other major energy users, including across the EU and in Japan, which is being forced to burn more coal and oil-based fuels to make up for the nuclear generation capacity lost in the wake of the Fukushima disaster. In addition to its relatively lower carbon-dioxide footprint, natural gas produces lower emissions of pollutants such as sulfur dioxide nitrogen oxide and other particulates than coal and oil. Natural gas—both in the form of LNG and compressed natural gas—is also being viewed as a potential replacement for oil in the vehicle transportation fleet, with large carbon dioxide abatement potential.114 However, as discussed in Part I, even the United States with its low gas prices is unlikely to see any significant move toward natural gas vehicles in the absence of government policies; the prospects for such vehicles entering the European or Asian markets, where gas is several times as expensive, are remote. On the other hand, additional volumes of natural gas in the global power generation fleet may also have longer-term detrimental consequences for carbon emissions. According to the IEA, by backing out nuclear and renewable energy generation, natural gas could add 320Mt of carbon dioxide by 2035.115 Whether U.S. LNG exports contribute to reduced carbon dioxide emissions through the displacement of coal fired power generation or to the crowding out of renewable and nuclear energy in the global energy mix is something of a moot point. According to the IEA, global power generation is projected to exceed 27,000 terawatt hours per year by 2020.116 Even assuming U.S. exports of 6 bcf/day (on the upper end of the range of expectations), zero losses due to transportation, regasification, and transmission, and a high natural gas power plant efficiency level of 60 percent, such volumes would account for just over one percent of total global power generation.117 Therefore, although the domestic environmental impacts associated with shale gas extraction may, pending the outcome of further study, prove to be a cause for concern with respect to greenhouse gas emissions, the potential for U.S. LNG exports to make a meaningful impact on global emissions through changes to the global power generation mix is negligible. Part III: Conclusions and Recommendations

This paper has attempted to answer two questions: Are U.S. LNG exports feasible? If so, what are the implications of U.S. LNG exports? For exports to be feasible, several demand and supply-related conditions need to be met. On the supply side, adequate resources must be available and their production must be sustainable over the long-term. The regulatory and policy environment will need to accommodate natural gas production to ensure that the resources are developed. The capacity and infrastructure required to enable exports must also be in place. This includes the adequacy of the pipeline and storage network, the availability of shipping capacity, and the availability of equipment for production and qualified engineers.

On the demand side, LNG exports will compete with two main other domestic end uses for natural gas: the power-generation sector, and the industrial and petrochemical sector. According to most projections, the U.S. electricity sector will see an increased demand for natural gas as it seeks to comply with policies and regulations aimed at reducing carbon-dioxide emissions and pollutants from the power-generation fleet. Cheaper natural gas in the industrial sector has the potential to lower the cost of petrochemical production and to improve the competitiveness of a range of refining and manufacturing operations. Advocates of natural gas usage in the transportation fleet – particularly in heavy-duty vehicles (HDVs) – see it as a way to decrease the country’s dependence on oil, although absent major policy support, this sector is unlikely to represent a significant source of gas demand.

For increased U.S. LNG exports to be feasible, they will also need to be competitive with supplies from other sources. The major demand centers that would import U.S. LNG would be Pacific Basin consumers (Japan, South Korea, and Taiwan, and increasingly China and India), and Atlantic Basin consumers, mostly in Europe. The supply and demand balance in the Atlantic and Pacific Basins and, therefore the feasibility for natural gas exports from the United States, depend heavily on the uncertain outlook for international unconventional natural gas production. Recent assessments in countries such as China, India, Ukraine, and Poland indicate that each country has significant domestic shale gas reserves. If these reserves are developed effectively—which is likely to be difficult in the short-term due to a lack of infrastructure, physical capacity, and human capacity—many of these countries would dramatically decrease their import dependence, with negative implications for existing and newcomer LNG exporters.

Detailed analysis of the foregoing factors suggests that the exportation of liquefied natural gas from the United States is logistically feasible. Based on current knowledge, the domestic U.S. natural gas resource base is large enough to accommodate the potential increased demand for natural gas from the electricity sector, the industrial sector, the residential and commercial sectors, the transportation sector, and exporters of LNG. Other obstacles to production, including infrastructure, investment, environmental concerns, and human capacity, are likely to be surmountable. Moreover, the current and projected supply and demand fundamentals of the international LNG market are conducive to competitive U.S.-sourced LNG.

While LNG exports may be practically feasible, they will be subject to approval by policy makers if they are to happen. In making a determination on the advisability of exports, the federal government will focus on the likely implications of LNG exports: i.e. whether LNG exports are in the “public interest.” The extent of the domestic implications is largely dependent upon the price impact of exports on domestic natural gas prices. While it is clear that domestic natural gas prices will increase if natural gas is exported, most existing analyses indicate that the implications of this price increase are likely to be modest. Natural gas producers will likely anticipate future demand from LNG exports and will increase production accordingly, limiting price spikes. The impact on the domestic industrial sector is likely to be marginal: to the extent that LNG exports raise domestic gas prices above the level at which they would have been in the absence of such exports, they will negatively affect the competitiveness of U.S. industry relative to international competitors. However, the competitiveness of natural-gas intensive U.S. companies relative to their counterparts is likely to remain strong, given the large differential between projected U.S. gas prices and oil prices, which are the basis for industrial feedstock by competitor countries. Further, LNG exports are likely to stimulate domestic gas production, potentially resulting in greater production of natural gas liquids such as ethane, a valuable feedstock for industrial consumers. LNG exports are also unlikely to result in an increase in price volatility. The volume of LNG exports is capped by the capacity limitations of liquefaction terminals. If liquefaction terminals are running at close to full capacity, an increase in international demand will do little to affect domestic demand for —and therefore domestic prices of —natural gas.

#### Plan causes exports

Ryan Wiser 7 and Mark Bolinger, Ernest Orlando Lawrence Berkeley National Laboratory, Can deployment of renewable energy put downward pressure on natural gas prices? Original Research Article, Energy Policy, Volume 35, Issue 1, January 2007, Pages 295-306

Renewable energy has historically been supported because of its perceived economic, environmental, economic-development, and national-security benefits. Recently, extreme price volatility in wholesale electricity and natural gas markets has led to discussions about the potential risk mitigation value of renewable resources in the United States and elsewhere. Deepening concerns about the ability of conventional gas production to keep up with demand have also resulted in a growing number of voices calling for resource diversification (see, e.g., Bernstein et al., 2002; Henning et al., 2003; NARUC, 2003; NPC, 2003a).¶ Renewable energy provides a direct hedge against volatile and escalating gas prices when it reduces the need to purchase variable-price natural gas-fired electricity generation, replacing that generation with fixed-price renewable energy (see, e.g., Bolinger et al., 2003; Awerbuch, 2003). In addition to this direct contribution to price stability, by displacing gas-fired generation, renewable energy may also reduce demand for natural gas and thus indirectly place downward pressure on gas prices.¶ Many recent modeling studies of increased renewables deployment in the United States have demonstrated that this “secondary” effect of putting downward pressure on natural gas prices could be significant, with the consumer benefits from reduced gas prices in many cases more than offsetting any increase in electricity costs caused by renewables deployment. As a result, this price effect is increasingly cited as justification for policies promoting renewable energy.1

#### U.S. LNG exports send a signal of energy competition with Russia---destroys energy coop key to broader relations

Richard Weitz 13, senior fellow and director of the Center for Political-Military Affairs at Hudson Institute, 1/29/13, “Global Insights: Oil Sector a Challenge for Russia, Opportunity for U.S.,” <http://www.worldpoliticsreview.com/articles/12672/global-insights-oil-sector-a-challenge-for-russia-opportunity-for-u-s>

In the view of Russians interviewed by the authors, this paucity of cooperation results from perceived impediments erected by the U.S. government. Similarly, Russian officials see the shale gas revolution as a conspiracy on the part of the United States to undermine Russia’s role in energy markets.

Absent forward momentum, the Russia-U.S. energy relationship might even deteriorate. The United States could soon become a major energy exporter again, which would lead to direct energy sales competition between Russia and the United States for the first time in history. One major opportunity for enhanced partnership, as opposed to competition, is the deal reached last August between Exxon Mobil and Rosneft. The project has only recently begun the preliminary seismic surveys, technical assessments and environmental studies that would allow any substantial drilling to start.

Bringing the project to fruition, and augmenting it with near-term cooperation on tight oil and other energy projects, is important for both sides. Concrete Russia-U.S. energy collaboration could help dispel mutual misconceptions and perhaps spur U.S. and Russian economic cooperation in other areas. That in turn could help to increase the number of stakeholders in both countries that share an interest in maintaining good relations. These kinds of private-sector ties, as much as political will in Washington and Moscow, will contribute to the health of bilateral ties moving forward.

#### Extinction

Graham Allison 11, Director of the Belfer Center for Science and International Affairs at Harvard’s Kennedy School of Government, 10/30/11, “10 reasons why Russia still matters,” http://dyn.politico.com/printstory.cfm?uuid=161EF282-72F9-4D48-8B9C-C5B3396CA0E6

That central point is that Russia matters a great deal to a U.S. government seeking to defend and advance its national interests. Prime Minister Vladimir Putin’s decision to return next year as president makes it all the more critical for Washington to manage its relationship with Russia through coherent, realistic policies. No one denies that Russia is a dangerous, difficult, often disappointing state to do business with. We should not overlook its many human rights and legal failures. Nonetheless, Russia is a player whose choices affect our vital interests in nuclear security and energy. It is key to supplying 100,000 U.S. troops fighting in Afghanistan and preventing Iran from acquiring nuclear weapons. Ten realities require U.S. policymakers to advance our nation’s interests by engaging and working with Moscow. First, Russia remains the only nation that can erase the United States from the map in 30 minutes. As every president since John F. Kennedy has recognized, Russia’s cooperation is critical to averting nuclear war. Second, Russia is our most consequential partner in preventing nuclear terrorism. Through a combination of more than $11 billion in U.S. aid, provided through the Nunn-Lugar [CTR] Cooperative Threat Reduction program, and impressive Russian professionalism, two decades after the collapse of the “evil empire,” not one nuclear weapon has been found loose. Third, Russia plays an essential role in preventing the proliferation of nuclear weapons and missile-delivery systems. As Washington seeks to stop Iran’s drive toward nuclear weapons, Russian choices to sell or withhold sensitive technologies are the difference between failure and the possibility of success. Fourth, Russian support in sharing intelligence and cooperating in operations remains essential to the U.S. war to destroy Al Qaeda and combat other transnational terrorist groups. Fifth, Russia provides a vital supply line to 100,000 U.S. troops fighting in Afghanistan. As U.S. relations with Pakistan have deteriorated, the Russian lifeline has grown ever more important and now accounts for half all daily deliveries. Sixth, Russia is the world’s largest oil producer and second largest gas producer. Over the past decade, Russia has added more oil and gas exports to world energy markets than any other nation. Most major energy transport routes from Eurasia start in Russia or cross its nine time zones. As citizens of a country that imports two of every three of the 20 million barrels of oil that fuel U.S. cars daily, Americans feel Russia’s impact at our gas pumps. Seventh, Moscow is an important player in today’s international system. It is no accident that Russia is one of the five veto-wielding, permanent members of the U.N. Security Council, as well as a member of the G-8 and G-20. A Moscow more closely aligned with U.S. goals would be significant in the balance of power to shape an environment in which China can emerge as a global power without overturning the existing order. Eighth, Russia is the largest country on Earth by land area, abutting China on the East, Poland in the West and the United States across the Arctic. This territory provides transit corridors for supplies to global markets whose stability is vital to the U.S. economy. Ninth, Russia’s brainpower is reflected in the fact that it has won more Nobel Prizes for science than all of Asia, places first in most math competitions and dominates the world chess masters list. The only way U.S. astronauts can now travel to and from the International Space Station is to hitch a ride on Russian rockets. The co-founder of the most advanced digital company in the world, Google, is Russian-born Sergei Brin. Tenth, Russia’s potential as a spoiler is difficult to exaggerate. Consider what a Russian president intent on frustrating U.S. international objectives could do — from stopping the supply flow to Afghanistan to selling S-300 air defense missiles to Tehran to joining China in preventing U.N. Security Council resolutions.

### China DA 1NC

#### China’s leading clean tech development now---it’s zero-sum with U.S. renewable development---key to Chinese growth, CCP stability, Chinese soft power, and warming

McMahon 13 Tamsin is a reporter for the National Post. “How China is going to save the world,” 1/27, http://www2.macleans.ca/2013/01/27/business/

China’s ongoing struggles with pollution have been a blight on the country’s international reputation. The world’s image of China is that of an industrial behemoth fuelled by the dirtiest of energies, coal. On the surface, the reputation is well deserved. No country pumps out as much CO2 as China (not even the U.S. comes close). But behind the smog, China’s environmental woes have become an unexpected boon to the global renewable energy industry. Last week’s air quality emergency sent Chinese green energy stocks soaring on the hope that the political fallout will prompt the Communist party to offer up more public money for the country’s burgeoning environmental protection sector.¶ Investors are counting on it. Even as it remains the scourge of environmentalists for being the largest emitter on the planet, China is also emerging as the world’s biggest spender on green energy.¶ Globally, green energy investment fell 11 per cent last year, according to a recent Bloomberg New Energy Finance report. Indebted European countries slashed subsidies, India cut its spending by more than 40 per cent and the U.S. witnessed a string of solar power manufacturer bankruptcies. China’s investment in renewable energy, meanwhile, was a bright spot. It rose 20 per cent to nearly $68 billion, or a full quarter of the $269 billion global total.¶ From having virtually no green energy infrastructure as recently as 2008, China has built 133 gigawatts of renewable energy—mainly wind turbines—enough to power as many as 53 million homes, or every household in Canada four times over. The International Energy Agency predicted that China would overtake Europe as the world’s top renewable energy growth market. It’s a market expected to be worth more than $470 billion by 2015, according to state-owned China Merchants Securities, or almost double what it was in 2009 and equal to about eight per cent of the country’s GDP.¶ That investment has caught the eye of clean-tech companies in Europe and North America, who are flocking to China in hopes of selling their technologies after seeing demand stagnate or collapse in their home markets. “All the key players are going to China these days,” says Changhua Wu, Greater China director of the Climate Group, a London-based agency that promotes green energy investment. “Everyone is trying to figure out what the potential for opportunity is, partly because everyone recognizes that China could potentially be the largest market for clean tech in the world.”¶ As China takes the lead, everyone will benefit from the technology that is developed and exported. China is saving itself, but might also be saving the world in the process.¶ While the Middle Kingdom’s smog problems have earned plenty of headlines, it has also been quietly attracting a host of very unlikely supporters, including praise from the Pew Charitable Trust and the World Wildlife Foundation, which gave its “climate solver” award this year to several Chinese companies that manufacture technology to capture and recycle wasted heat, water and chemical emissions to power everything from factories to refrigerators. Greenpeace predicted the country would be on track to install 400 gigawatts of wind energy by 2030 and could become the largest solar market in the world.¶ The argument that China is the world’s environmental bad guy “is increasingly difficult, if not impossible, to make given China’s recent policies,” wrote the authors of an October report for the Climate Institute, an Australian think tank. The country has closed more coal-fired power plants since 2006 than the entire capacity of Australia’s electrical grid, and exported more than $35-billion worth of renewable energy technology—equal to the total value of shoes exported from China that year. This year, China is rolling out pilot projects that could eventually lead to the world’s largest carbon trading system.¶ “The broad scheme of things is that China believes it wants to become a resource-conserving, environmentally friendly society and that’s the way they describe it, in those exact words,” says Arthur Hanson, one of Canada’s leading experts on sustainable development. The former founding director of Dalhousie University’s School for Resource and Environmental Studies, Hanson is in Beijing this week in his role as international chief adviser to the China Council for International Co-operation on Environment and Development.¶ Granted, China has little choice but to invest in renewables as it seeks out more sources of energy to help power its rapidly developing economy, with GDP growth expected just shy of eight per cent this year and an urban population rising by an estimated 2.3 per cent a year. Green energy is also seen as a political tool for the Chinese government that can quell rising environmental protests and appease political dissent. “The leadership in China is really recognizing that in order to manage and govern the country better you need to find a universal underlying theme to make sure everyone is with you,” says Wu. “Green growth or sustainable development happens to be the only one.”**¶** But beyond the obvious political and economic advantages of green energy, China is also pinning its hopes on the belief that demand for clean technology will enable the country to transform both its domestic economy and its exports.¶ Until now, China’s green energy sector has largely done what the country does best: import technology developed elsewhere, reproduce it for less money and then export it back to the West. That’s changing as China pours billions into research and development and advanced education in hopes that clean tech can help shift China from being merely the low-cost factory of the world to being a global leader in developing innovative technology.¶ China’s current five-year plan, which runs through 2015, includes an economic development blueprint that will see more than $1.5 trillion invested in seven industries, all of them related in some way to environmental protection and renewable energy technology.

#### China’s economic rise prevents CCP instability and lashout --- decline tubes the global economy, US primacy, and Sino relations

Mead 9 Walter Russell Mead, Henry A. Kissinger Senior Fellow in U.S. Foreign Policy at the Council on Foreign Relations, “Only Makes You Stronger,” The New Republic, 2/4/9, http://www.tnr.com/story\_print.html?id=571cbbb9-2887-4d81-8542-92e83915f5f8

The greatest danger both to U.S.-China relations and to American power itself is probably not that China will rise too far, too fast; it is that the current crisis might end China's growth miracle. In the worst-case scenario, the turmoil in the international economy will plunge China into a major economic downturn. The Chinese financial system will implode as loans to both state and private enterprises go bad. Millions or even tens of millions of Chinese will be unemployed in a country without an effective social safety net. The collapse of asset bubbles in the stock and property markets will wipe out the savings of a generation of the Chinese middle class. The political consequences could include dangerous unrest--and a bitter climate of anti-foreign feeling that blames others for China's woes. (Think of Weimar Germany, when both Nazi and communist politicians blamed the West for Germany's economic travails.) Worse, instability could lead to a vicious cycle, as nervous investors moved their money out of the country, further slowing growth and, in turn, fomenting ever-greater bitterness. Thanks to a generation of rapid economic growth, China has so far been able to manage the stresses and conflicts of modernization and change; nobody knows what will happen if the growth stops.

#### Extinction

Yee and Storey 2 Herbert is a Professor of Politics and IR @ Hong Kong Baptist University, and Ian is a Lecturer in Defence Studies @ Deakin University. “The China Threat: Perceptions, Myths and Reality,” p. 5

The fourth factor contributing to the perception of a China threat is the fear of political and economic collapse in the PRC, resulting in territorial fragmentation, civil war and waves of refugees pouring into neighbouring countries. Naturally, any or all of these scenarios would have a profoundly negative impact on regional stability.Today the Chinese leadership faces a raft of internal problems, including the increasing political demands of its citizens, a growing population, a shortage of natural resources and a deterioration in the natural environment caused by rapid industrialization and pollution. These problems are putting a strain on the central government’s ability to govern effectively. Political disintegration or a Chinese civil war might result in millions of Chinese refugees seeking asylum in neighbouring countries. Such an unprecedented exodus of refugees from a collapsed PRC would no doubt put a severe strain on the limited resources of China’s neighbours. A fragmented China could also result in another nightmare scenario- nuclear weapons falling into the hands of irresponsible local provincial leaders or warlords. From this perspective, a disintegrating China would also pose a threat to its neighbours and the world.

### VC

#### VC’s shifting from solar and wind to smart grid and efficiency investments --- the sectors compete for capital

Bloomberg 13, “Silicon Valley Investors Shifting to Power Grid After Solar Sours,” 2-25-13, http://www.renewableenergyworld.com/rea/news/article/2013/02/silicon-valley-investors-shifting-to-power-grid-after-solar-sours

SAN FRANCISCO AND NEW YORK -- Silicon Valley investors that helped build the solar industry are shifting cash into electricity-grid technology and energy-storage developers after bets on panel manufacturers failed to pay off.

Companies including VantagePoint Capital Partners and Khosla Ventures are stepping up funding for systems to manage electricity, which are typically less capital intensive than solar-panel factories. Venture capital and private-equity financing for renewables dropped to its lowest in at least six years in 2012, according to data compiled by Bloomberg.

Competition for the best investments from Blackstone Group LP to Warren Buffett along with a plunge in profit from the solar and wind industries prompted the shift. It pushed Silicon Valley into taking smaller stakes in emerging technologies that help squeeze efficiency and flexibility from power supplies.

"We are going through a repositioning of cleantech," said Wal van Lierop, founder of Chrysalix Energy Venture Capital, which is based in Vancouver. "The big sectors -- solar, wind and LEDs -- are in the process of being consolidated. They're maturing, so they fall out of the cleantech opportunity basket. We now are trying to find the next hot spots."

Investment flowing from private equity and venture capital firms into renewable energy fell 34 percent to $5.75 billion last year, according to Bloomberg New Energy Finance, the lowest since at least 2006. That accounted for 2.2 percent of the $268.7 billion invested in the clean energy industry, down from as much as 6.5 percent in 2008.

Grid Technology

Chrysalix invested in the energy-management providers Enbala Power Networks and AlertMe Ltd. Khosla funded LightSail Energy Inc., which is developing energy storage devices.

"Our specialty is with large technology risk, where if the technology works there's a big economic breakthrough," Vinod Khosla, the billionaire founder of Khosla Ventures in Menlo Park, California, said in an interview. "That's what we keep looking for in all areas."

Alan Salzman, chief executive officer of VantagePoint Capital Partners, said systems that allow energy to be used more efficiently and help the grid cope with variable supplies from wind and solar plants represent the richest new areas.

Energy storage is "an essential component" for renewable energy to thrive, Salzman said. "That's an area that has been hugely underserved historically that we think remains hugely interesting," he said.

Energy Efficiency

VantagePoint, based in San Bruno, California, backed Next Step Living Inc. and Tendril Networks Inc., which developed energy-efficiency software to reduce power consumption.

"One of the disappointments in the U.S. is that our utility smart-grid deployments have really slowed," Salzman said. Deployments have "shifted overseas right now, away from the U.S., because of our regulatory environment," he said. "It doesn't mean that our archaic system -- see Hurricane Sandy -- isn't ripe for updating."

So-called energy smart technologies including efficiency products and equipment for the electricity grid amounted to $2.2 billion of the clean energy investment from venture capital and private equity tracked last year by New Energy Finance. The category accounted for 38 percent of VC/PE funding for clean energy last year, up from 15 percent in 2008.

Renewables Dwindling

Profits have drained away from renewable energy in the past three years as manufacturing capacity surged quicker than demand. Solar cell prices plunged 74 percent since the end of 2010 to 40 cents from $1.46 for each watt of capacity. The cost of installing wind turbines on land fell 15 percent to $81.44 per megawatt of capacity since mid-2009, according to Bloomberg New Energy Finance estimates.

That reduced the industry's attractiveness for venture capital companies. With solar, now that the technology is proven, the industry's biggest challenge is driving down costs, said Raj Prabhu, managing partner at Mercom Capital Group in Austin, Texas.

#### Solves competitiveness, economic collapse, and giant blackouts

Stephen Chu, Nobel Prize in Physics, 12 [“America’s Competitiveness Depends on a 21st Century Grid,” May 30, Energy.Gov, http://energy.gov/articles/america-s-competitiveness-depends-21st-century-grid] PMA=Power Marketing Administrations

Upgrades are Key to American Competitiveness¶ The leadership of the PMAs is critically important because America’s continued global competiveness in the 21st century will be significantly affected by whether we can efficiently produce and distribute electricity to our businesses and consumers, seamlessly integrating new technologies and new sources of power.¶ Other countries are moving rapidly to capitalize on cost-saving new smart grid and transmission technologies -- and we will find ourselves at a competitive disadvantage unless we do the same. Blackouts and brownouts already cost our economy tens of billions of dollars a year, and we risk ever more serious consequences if we continue to rely on outdated and inflexible infrastructure. For example, across the country, most of the transmission lines and power transformers we depend upon are decades old and in many cases nearing or exceeding their expected lifespan.¶ Lessons of the September 2011 Blackout¶ One recent example of the challenges we face occurred in September 2011, when a relatively minor loss of a single transmission line triggered a series of cascading failures that ultimately left 2.7 million electric customers in Arizona, Southern California, and Baja California, Mexico without power, some for up to 12 hours. The customers of five utilities -- San Diego Gas and Electric (SDG&E), Imperial Irrigation District (IID), Western Area Power Administration-Lower Colorado (WALC), Arizona Public Service (APS), and Comision Federal de Electridad (CFE) -- lost power, some for multiple hours extending into the next day. ¶ Put simply, this disruption to the electric system could have been avoided. The investigation into the blackout conducted by the Federal Energy Regulatory Commission and the North American Electric Reliability Council concluded the system failure stemmed primarily from weaknesses in two broad areas: 1) operations planning and 2) real-time situational awareness. Without these two critical elements, system operators are unable to ensure reliable operations or prevent cascading outages in the event of losing a single component on the grid. **As our system ages, these situations threaten to become more frequent and even more costly.** ¶ The Role of the PMAs in Accelerating the U.S. Transition to a 21st Century Grid¶ Most of our nation’s electric transmission system is privately owned. However, the federal government directly owns and controls significant portions of the electric transmission system through its four PMAs, created to market and distribute hydroelectric power from federally owned dams. The PMAs, part of the Energy Department, are responsible for more than 33,000 miles of transmission that overlay the transmission systems of utilities in 20 states, which represent about 42% of the continental United States. The PMAs provide the federal government the ability to lead by example in modernizing and securing our nation’s power grid, or risk putting the entire system -- and America’s economy -- at risk. The benefits of action, as well as the risks and consequences of inaction, could directly or indirectly affect nearly every electricity consumer and every business in the United States. ¶ This is why my March 16th memo set forth foundational goals that DOE is considering for the PMAs. This is part of a much broader effort to transition to a more flexible and resilient electric grid and establish much greater coordination among system operators.

#### Grid collapse causes nuclear war---disrupts military communication

Andres and Breetz 11

Richard Andres, Professor of National Security Strategy at the National War College and a Senior Fellow and Energy and Environmental Security and Policy Chair in the Center for Strategic Research, Institute for National Strategic Studies, at the National Defense University, and Hanna Breetz, doctoral candidate in the Department of Political Science at The Massachusetts Institute of Technology, Small Nuclear Reactorsfor Military Installations:Capabilities, Costs, andTechnological Implications, [www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf](http://www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf)

The DOD interest in small reactors derives largely from problems with base and logistics vulnerability. Over the last few years, the Services have begun to reexamine virtually every aspect of how they generate and use energy with an eye toward cutting costs, decreasing carbon emissions, and reducing energy-related vulnerabilities. These actions have resulted in programs that have significantly reduced DOD energy consumption and greenhouse gas emissions at domestic bases. Despite strong efforts, however, two critical security issues have thus far proven resistant to existing solutions: bases’ vulnerability to civilian power outages, and the need to transport large quantities of fuel via convoys through hostile territory to forward locations. Each of these is explored below. Grid Vulnerability. DOD is unable to provide its bases with electricity when the civilian electrical grid is offline for an extended period of time. Currently, domestic military installations receive 99 percent of their electricity from the civilian power grid. As explained in a recent study from the Defense Science Board: DOD’s key problem with electricity is that **critical missions, such as national strategic awareness and national command authorities, are** almost **entirely dependent on the national transmission grid** . . . [which] is fragile, vulnerable, near its capacity limit, and outside of DOD control. In most cases, neither the grid nor on-base backup power provides sufficient reliability to ensure continuity of critical national priority functions and oversight of strategic missions in the face of a long term (several months) outage.7 The grid’s fragility was demonstrated during the 2003 Northeast blackout in which 50 million people in the United States and Canada lost power, some for up to a week, when one Ohio utility failed to properly trim trees. The blackout created cascading disruptions in sewage systems, gas station pumping, cellular communications, border check systems, and so forth, and demonstrated the interdependence of modern infrastructural systems.8 More recently, awareness has been growing that the grid is also vulnerable to purposive attacks. A report sponsored by the Department of Homeland Security suggests that a coordinated cyberattack on the grid could result in a third of the country losing power for a period of weeks or months.9 Cyberattacks on critical infrastructure are not well understood. It is not clear, for instance, whether existing terrorist groups might be able to develop the capability to conduct this type of attack. It is likely, however, that some nation-states either have or are working on developing the ability to take down the U.S. grid. In the event of a war with one of these states, it is possible, if not likely, that parts of the civilian grid would cease to function, taking with them military bases located in affected regions. Government and private organizations are currently working to secure the grid against attacks; however, it is not clear that they will be successful. Most military bases currently have backup power that allows them to function for a period of hours or, at most, a few days on their own. If power were not restored after this amount of time, the results could be disastrous. First, military assets taken offline by the crisis would not be available to help with disaster relief. Second, **during an extended blackout, global military operations could be seriously compromised; this disruption would be particularly serious if the blackout was induced during major combat operations**. During the Cold War, this type of event was far less likely because the United States and Soviet Union shared the common understanding that **blinding an opponent with a grid blackout** **could escalate to nuclear war**. America’s current **opponents**, however, **may not share this fear or be deterred by this possibility**. In 2008, the Defense Science Board stressed that DOD should mitigate the electrical grid’s vulnerabilities by turning military installations into “**islands**” of energy self-sufficiency. The department has made efforts to do so by promoting efficiency programs that lower power consumption on bases and by constructing renewable power generation facilities on selected bases. **Unfortunately, these programs will not come close to reaching the goal of islanding the vast majority of bases**. Even with massive investment in efficiency and renewables, most bases would not be able to function for more than a few days after the civilian grid went offline Unlike other alternative sources of energy, **small reactors have the potential to solve DOD’s vulnerability to grid outages**. Most bases have relatively light power demands when compared to civilian towns or cities. Small reactors could easily support bases’ power demands separate from the civilian grid during crises. In some cases, the reactors could be designed to produce enough power not only to supply the base, but also to provide critical services in surrounding towns during long-term outages. Strategically, islanding bases with small reactors has another benefit. One of the main reasons an enemy might be willing to risk reprisals by taking down the U.S. grid during a period of military hostilities would be to affect ongoing military operations. Without the lifeline of intelligence, communication, and logistics provided by U.S. domestic bases, American military operations would be compromised in almost any conceivable contingency. Making bases more resilient to civilian power outages would reduce the incentive for an opponent to attack the grid. An opponent might still attempt to take down the grid for the sake of disrupting civilian systems, but the powerful incentive to do so in order to win an ongoing battle or war would be greatly reduced.

# Case

## Commercialization

### AT: Economy

#### No chance of war from economic decline---best and most recent data

Daniel W. Drezner 12, Professor, The Fletcher School of Law and Diplomacy, Tufts University, October 2012, “The Irony of Global Economic Governance: The System Worked,” <http://www.globaleconomicgovernance.org/wp-content/uploads/IR-Colloquium-MT12-Week-5_The-Irony-of-Global-Economic-Governance.pdf>

The final outcome addresses a dog that hasn’t barked: the effect of the Great Recession on cross-border conflict and violence. During the initial stages of the crisis, multiple analysts asserted that the financial crisis would lead states to increase their use of force as a tool for staying in power.37 Whether through greater internal repression, diversionary wars, arms races, or a ratcheting up of great power conflict, there were genuine concerns that the global economic downturn would lead to an increase in conflict. Violence in the Middle East, border disputes in the South China Sea, and even the disruptions of the Occupy movement fuel impressions of surge in global public disorder.

The aggregate data suggests otherwise, however. The Institute for Economics and Peace has constructed a “Global Peace Index” annually since 2007. A key conclusion they draw from the 2012 report is that “The average level of peacefulness in 2012 is approximately the same as it was in 2007.”38 Interstate violence in particular has declined since the start of the financial crisis – as have military expenditures in most sampled countries. Other studies confirm that the Great Recession has not triggered any increase in violent conflict; the secular decline in violence that started with the end of the Cold War has not been reversed.39 Rogers Brubaker concludes, “the crisis has not to date generated the surge in protectionist nationalism or ethnic exclusion that might have been expected.”40

None of these data suggest that the global economy is operating swimmingly. Growth remains unbalanced and fragile, and has clearly slowed in 2012. Transnational capital flows remain depressed compared to pre-crisis levels, primarily due to a drying up of cross-border interbank lending in Europe. Currency volatility remains an ongoing concern. Compared to the aftermath of other postwar recessions, growth in output, investment, and employment in the developed world have all lagged behind. But the Great Recession is not like other postwar recessions in either scope or kind; expecting a standard “V”-shaped recovery was unreasonable. One financial analyst characterized the post-2008 global economy as in a state of “contained depression.”41 The key word is “contained,” however. Given the severity, reach and depth of the 2008 financial crisis, the proper comparison is with Great Depression. And by that standard, the outcome variables look impressive. As Carmen Reinhart and Kenneth Rogoff concluded in This Time is Different: “that its macroeconomic outcome has been only the most severe global recession since World War II – and not even worse – must be regarded as fortunate.”42

### AT: Manufacturing

#### US manufacturing is high and resilient---it can adapt to shocks to the system

Skie 9-6 – Erik Skie, Manufacturing and Distribution Managing Partner at CliftonLarsonAllen, law firm, September 6th, 2012, “Survey Shows Resilient Manufacturing Sector Is Adapting to New Environment” www.cliftonlarsonallen.com/Manufacturing/Survey-Shows-Resilient-Manufacturing-Sector-Is-Adapting-to-New-Environment.aspx

Over the last several decades, U.S. manufacturers have faced an onslaught of challenges that had led many to predict the eventual demise of U.S. manufacturing. As recently as five years ago, the conventional wisdom was that the United States could not compete with the low labor costs in countries like China, Vietnam, and India. In addition, purchasing tactics like those implemented by the “big three” auto companies underscored the perspective that life as a manufacturer would be precarious at best.¶ **The dynamic shifts in this industry are almost unparalleled in any other sector of our economy.** Interestingly, though, **in a recent survey of almost 400 small to mid-sized manufacturers across the country,** most have returned to financial stability after the Great Recession and are focused on future opportunities**.**¶ **Stiff competition has produced a U.S. manufacturing base that is** innovative**,** adaptable**, and** resilient **in the face of adversity.** Since August 2009, the Institute of Supply Chain Management’s (ISM) Manufacturing Production Index (PMI), a measure of manufacturing activity in the United States, has shown expansion for 33 of the past 35 months.¶ Here are some survey respondents’ observations on opportunities and challenges in today’s manufacturing industry.¶ Expanding domestic sales¶ Over the past decade the trend has been to send work to low cost-producers overseas. However, the anticipated profit improvements of off-shoring, which are primarily driven by lower wages, have sometimes been elusive due to collateral issues like longer lead times, less flexibility, and the need to carry more inventory. While there is still a clear role for overseas production, more companies have turned to re-shoring in the past 24 months for their more complex, design intensive, lower volume, and higher mix products. The need for supply chain intimacy is creating renewed demand for flexible, responsive U.S. domestic production.¶ International sales¶ The U.S. manufacturing base has been the home for tremendous product innovations for many years. As globalization has increased, the middle class in places like China is growing rapidly and turning a once producer-only economy into a nation of consumers. **China’s increased consumption of U.S. brands and technology** has been a blessing for U.S. manufacturers like General Motors. **The aerospace industry is benefitting as well**, with Boeing seeing significant backlog for their products in China.

### AT: Protectionism

#### The public won’t tolerate protectionism/lashout

Daniel W. Drezner 12, Professor, The Fletcher School of Law and Diplomacy, Tufts University, October 2012, “The Irony of Global Economic Governance: The System Worked,” <http://www.globaleconomicgovernance.org/wp-content/uploads/IR-Colloquium-MT12-Week-5_The-Irony-of-Global-Economic-Governance.pdf>

Another salient outcome is mass public attitudes about the global economy. A general assumption in public opinion research is that during a downturn, demand for greater economic closure should spike, as individuals scapegoat foreigners for domestic woes. The global nature of the 2008 crisis, combined with anxiety about the shifting distribution of power, should have triggered a fall in support for an open global economy. Somewhat surprisingly, however, the reverse is true. Pew’s Global Attitudes Project has surveyed a wide spectrum of countries since 2002, asking people about their opinions on both international trade and the free market more generally.35 The results show resilient support for expanding trade and business ties with other countries. 24 countries were surveyed in both 2007 and in at least one year after 2008, including a majority of the G-20 economies. Overall, 18 of those 24 countries showed equal or greater support for trade in 2009 than two years earlier. By 2011, 20 of 24 countries showed greater or equal support for trade compared to 2007. Indeed, between 2007 and 2012, the unweighted average support for more trade in these countries increased from 78.5% to 83.6%. Contrary to expectation, there has been no mass public rejection of the open global economy. Indeed, public support for the open trading system has strengthened, despite softening public support for freemarket economics more generally.36

### CO2 Ag

#### Best CO2 fertilization card yet

Craig Idso 7, founder and chairman of the board of the Center for the Study of Carbon Dioxide and Global Change, member of the American Association for the Advancement of Science, American Geophysical Union, American Meteorological Society, Arizona-Nevada Academy of Sciences, and Association of American Geographers; and Sherwood Idso, research physicist with the USDA's Agricultural Research Service at the US Water Conservation Laboratory and adjunct professor at the ASU Office of Climatology; June 6, 2007, “Carbon Dioxide and Global Change: Separating Scientific Fact from Personal Opinion,” online: <http://heartland.org/sites/all/modules/custom/heartland_migration/files/pdfs/21556.pdf>

How much land can ten billion people spare for nature? This provocative question was posed by Waggoner (1995) in an insightful essay wherein he explored the dynamic tension that exists between the need for land to support the agricultural enterprises that sustain mankind, and the need for land to support the natural ecosystems that sustain all other creatures. This challenge of meeting our future food needs – and not decimating the rest of the biosphere in the process – was stressed even more strongly by Huang et al. (2002), who wrote that humans “have encroached on almost all of the world's frontiers, leaving little new land that is cultivatable.” And in consequence of humanity's usurpation of this most basic of natural resources, Raven (2002) stated in his Presidential Address to the American Association for the Advancement of Science that “species-area relationships, taken worldwide in relation to habitat destruction, lead to projections of the loss of fully two-thirds of all species on earth by the end of this century.”

In a more detailed analysis of the nature and implications of this impending “global landgrab” – which moved it closer to the present by a full half-century – Tilman et al. (2001) concluded that the task of meeting the doubled world food demand, which they calculated would exist in the year 2050, would likely exact a toll that “may rival climate change in environmental and societal impacts.” But how could something so catastrophic manifest itself so soon?

Tilman and his nine collaborators shed some light on this question by noting that at the end of the 20th century mankind was already appropriating “more than a third of the production of terrestrial ecosystems and about half of usable freshwaters.” Now, think of doubling those figures, in order to meet the doubled global food demand that Tilman et al. predict for the year 2050. The results suggest that a mere 43 years from now mankind will be appropriating more than two thirds of terrestrial ecosystem production plus all of earth’s remaining usable freshwater, as has also been discussed by Wallace (2000). In terms of land devoted to agriculture, Tilman et al. calculate a much less ominous 18% increase by the year 2050. However, because most developed countries are projected to withdraw large areas of land from farming over the next fifty years, the loss of natural ecosystems to crops and pastures in developing countries will amount to about half of their remaining suitable land, which would, in the words of the Tilman team, “represent the worldwide loss of natural ecosystems larger than the United States.” What is more, they say that these land usurpations “could lead to the loss of about a third of remaining tropical and temperate forests, savannas, and grasslands.” And in a worrisome reflection upon the consequences of these land-use changes, they remind us that “species extinction is an irreversible impact of habitat destruction.”

What can be done to avoid this horrific situation? In a subsequent analysis, Tilman et al. (2002) introduced a few more facts before suggesting some solutions. First of all, they noted that by 2050 the human population of the globe is projected to be 50% larger than it was just prior to the writing of their paper, and that global grain demand by 2050 could well double, due to expected increases in per capita real income and dietary shifts toward a higher proportion of meat. Hence, they but stated the obvious when they concluded that “raising yields on existing farmland is essential for ‘saving land for nature’.” So how can this readily-defined but Herculean task be accomplished? Tilman et al. proposed a strategy that focuses on three essential efforts: (1) increasing crop yield per unit of land area, (2) increasing crop yield per unit of nutrients applied, and (3) increasing crop yield per unit of water used.

With respect to the first of these efforts – increasing crop yield per unit of land area – the researchers note that in many parts of the world the historical rate-of-increase in crop yield is declining, as the genetic ceiling for maximal yield potential is being approached. This observation, in their estimation, “highlights the need for efforts to steadily increase the yield potential ceiling.” With respect to the second effort – increasing crop yield per unit of nutrients applied – they note that “without the use of synthetic fertilizers, world food production could not have increased at the rate [that it did in the past] and more natural ecosystems would have been converted to agriculture.” Hence, they say that the ultimate solution “will require significant increases in nutrient use efficiency, that is, in cereal production per unit of added nitrogen.” Finally, with respect to the third effort – increasing crop yield per unit of water used – Tilman et al. note that “water is regionally scarce,” and that “many countries in a band from China through India and Pakistan, and the Middle East to North Africa either currently or will soon fail to have adequate water to maintain per capita food production from irrigated land.” Increasing crop water use efficiency, therefore, is also a must.

Although the impending man vs. nature crisis and several important elements of its potential solution are thus well defined, Tilman and his first set of collaborators concluded that “even the best available technologies, fully deployed, cannot prevent many of the forecasted problems.” This was also the finding of Idso and Idso (2000), who concluded that although “expected advances in agricultural technology and expertise will significantly increase the food production potential of many countries and regions,” these advances “will not increase production fast enough to meet the demands of the even faster-growing human population of the planet.”

How can we prevent this unthinkable catastrophe from occurring, especially when it has been concluded by highly-credentialed researchers that earth possesses insufficient land and freshwater resources to forestall it, while simultaneously retaining any semblance of the natural world and its myriad animate creations? Although the task may appear next to impossible to accomplish, it can be done; for we have a powerful ally in the ongoing rise in the atmosphere’s CO2 concentration that can provide what we can't.

Since atmospheric CO2 is the basic “food” of nearly all plants, the more of it there is in the air, the better they function and the more productive they become. For a 300-ppm increase in the atmosphere's CO2 concentration above the planet’s current base level of slightly less than 400 ppm, for example, the productivity of earth's herbaceous plants rises by something on the order of 30% (Kimball, 1983; Idso and Idso, 1994), while the productivity of its woody plants rises by something on the order of 50% (Saxe et al., 1998; Idso and Kimball, 2001). Thus, as the air's CO2 content continues to rise, so too will the productive capacity or land-use efficiency of the planet continue to rise, as the aerial fertilization effect of the upward-trending atmospheric CO2 concentration boosts the growth rates and biomass production of nearly all plants in nearly all places. In addition, elevated atmospheric CO2 concentrations typically increase plant nutrient-use efficiency in general – and nitrogen-use efficiency in particular – as well as plant wateruse efficiency, as may be verified by perusing the many reviews of scientific journal articles we have produced on these topics and archived in the Subject Index of our website (www.co2science.org). Consequently, with respect to fostering all three of the plant physiological phenomena that Tilman et al. (2002) contend are needed to prevent the catastrophic consequences they foresee for the planet just a few short decades from now, a continuation of the current upward trend in the atmosphere's CO2 concentration would appear to be essential.

In the case we are considering here, for example, the degree of crop yield enhancement likely to be provided by the increase in atmospheric CO2 concentration expected to occur between 2000 and 2050 has been calculated by Idso and Idso (2000) to be sufficient – but only by the slightest of margins – to compensate for the huge differential that is expected to otherwise prevail between the supply and demand for food earmarked for human consumption just 43 years from now. Consequently, letting the evolution of technology take its natural course, with respect to anthropogenic CO2 emissions, would appear to be the only way we will ever be able to produce sufficient agricultural commodities to support ourselves in the year 2050 without the taking of unconscionable amounts of land and freshwater resources from nature and decimating the biosphere in the process.

### AT: Warming

#### No impact---mitigation and adaptation will solve---no tipping point or “1% risk” args

Robert O. Mendelsohn 9, the Edwin Weyerhaeuser Davis Professor, Yale School of Forestry and Environmental Studies, Yale University, June 2009, “Climate Change and Economic Growth,” online: http://www.growthcommission.org/storage/cgdev/documents/gcwp060web.pdf

The heart of the debate about climate change comes from a number of warnings from scientists and others that give the impression that human-induced climate change is an immediate threat to society (IPCC 2007a,b; Stern 2006). Millions of people might be vulnerable to health effects (IPCC 2007b), crop production might fall in the low latitudes (IPCC 2007b), water supplies might dwindle (IPCC 2007b), precipitation might fall in arid regions (IPCC 2007b), extreme events will grow exponentially (Stern 2006), and between 20–30 percent of species will risk extinction (IPCC 2007b). Even worse, there may be catastrophic events such as the melting of Greenland or Antarctic ice sheets causing severe sea level rise, which would inundate hundreds of millions of people (Dasgupta et al. 2009). Proponents argue there is no time to waste. Unless greenhouse gases are cut dramatically today, economic growth and well‐being may be at risk (Stern 2006).

These statements are largely alarmist and misleading. Although climate change is a serious problem that deserves attention, society’s immediate behavior has an extremely low probability of leading to catastrophic consequences. The science and economics of climate change is quite clear that emissions over the next few decades will lead to only mild consequences. The severe impacts predicted by alarmists require a century (or two in the case of Stern 2006) of no mitigation. Many of the predicted impacts assume there will be no or little adaptation. The net economic impacts from climate change over the next 50 years will be small regardless. Most of the more severe impacts will take more than a century or even a millennium to unfold and many of these “potential” impacts will never occur because people will adapt. It is not at all apparent that immediate and dramatic policies need to be developed to thwart long‐range climate risks. What is needed are long‐run balanced responses.

No extinction from climate change

NIPCC 11 – the Nongovernmental International Panel on Climate Change, an international panel of nongovernment scientists and scholars, March 8, 2011, “Surviving the Unprecedented Climate Change of the IPCC,” online: http://www.nipccreport.org/articles/2011/mar/8mar2011a5.html

In a paper published in Systematics and Biodiversity, Willis et al. (2010) consider the IPCC (2007) "predicted climatic changes for the next century" -- i.e., their contentions that "global temperatures will increase by 2-4°C and possibly beyond, sea levels will rise (~1 m ± 0.5 m), and atmospheric CO2 will increase by up to 1000 ppm" -- noting that it is "widely suggested that the magnitude and rate of these changes will result in many plants and animals going extinct," citing studies that suggest that "within the next century, over 35% of some biota will have gone extinct (Thomas et al., 2004; Solomon et al., 2007) and there will be extensive die-back of the tropical rainforest due to climate change (e.g. Huntingford et al., 2008)."

On the other hand, they indicate that some biologists and climatologists have pointed out that "many of the predicted increases in climate have happened before, in terms of both magnitude and rate of change (e.g. Royer, 2008; Zachos et al., 2008), and yet biotic communities have remained remarkably resilient (Mayle and Power, 2008) and in some cases thrived (Svenning and Condit, 2008)." But they report that those who mention these things are often "placed in the 'climate-change denier' category," although the purpose for pointing out these facts is simply to present "a sound scientific basis for understanding biotic responses to the magnitudes and rates of climate change predicted for the future through using the vast data resource that we can exploit in fossil records."

Going on to do just that, Willis et al. focus on "intervals in time in the fossil record when atmospheric CO2 concentrations increased up to 1200 ppm, temperatures in mid- to high-latitudes increased by greater than 4°C within 60 years, and sea levels rose by up to 3 m higher than present," describing studies of past biotic responses that indicate "the scale and impact of the magnitude and rate of such climate changes on biodiversity." And what emerges from those studies, as they describe it, "is evidence for rapid community turnover, migrations, development of novel ecosystems and thresholds from one stable ecosystem state to another." And, most importantly in this regard, they report "there is very little evidence for broad-scale extinctions due to a warming world."

In concluding, the Norwegian, Swedish and UK researchers say that "based on such evidence we urge some caution in assuming broad-scale extinctions of species will occur due solely to climate changes of the magnitude and rate predicted for the next century," reiterating that "the fossil record indicates remarkable biotic resilience to wide amplitude fluctuations in climate."

### AT: Oceans

#### No ocean acidification impact---CO2’s impact is positive on most marine life

Craig Idso et al 12, founder and chairman of the board of the Center for the Study of Carbon Dioxide and Global Change, member of the American Association for the Advancement of Science, American Geophysical Union, American Meteorological Society, Arizona-Nevada Academy of Sciences, and Association of American Geographers; Sherwood Idso, research physicist with the USDA's Agricultural Research Service at the US Water Conservation Laboratory and adjunct professor at the ASU Office of Climatology; and Keith Idso, Vice President of the Center for the Study of Carbon Dioxide and Global Change, July 11, 2012, “The Potential for Adaptive Evolution to Enable the World's Most Important Calcifying Organism to Cope with Ocean Acidification,” CO2 Science, Vol. 15, No. 28

In an important paper published in the May 2012 issue of Nature Geoscience, Lohbeck et al. write that "our present understanding of the sensitivity of marine life to ocean acidification is based primarily on short-term experiments," which often depict negative effects. However, they go on to say that phytoplanktonic species with short generation times "may be able to respond to environmental alterations through adaptive evolution." And with this tantalizing possibility in mind, they studied, as they describe it, "the ability of the world's single most important calcifying organism, the coccolithophore Emiliania huxleyi, to evolve in response to ocean acidification in two 500-generation selection experiments."

Working with freshly isolated genotypes from Bergen, Norway, the three German researchers grew them in batch cultures over some 500 asexual generations at three different atmospheric CO2 concentrations - ambient (400 ppm), medium (1100 ppm) and high (2200 ppm) - where the medium CO2 treatment was chosen to represent the atmospheric CO2 level projected for the beginning of the next century. This they did in a multi-clone experiment designed to provide existing genetic variation that they said "would be readily available to genotypic selection," as well as in a single-clone experiment that was initiated with one "haphazardly chosen genotype," where evolutionary adaptation would obviously require new mutations. So what did they learn?

Compared with populations kept at ambient CO2 partial pressure, Lohbeck et al. found that those selected at increased CO2 levels "exhibited higher growth rates, in both the single- and multi-clone experiment, when tested under ocean acidification conditions." Calcification rates, on the other hand, were somewhat lower under CO2-enriched conditions in all cultures; but the research team reports that they were "up to 50% higher in adapted [medium and high CO2] compared with non-adapted cultures." And when all was said and done, they concluded that "contemporary evolution could help to maintain the functionality of microbial processes at the base of marine food webs in the face of global change [our italics]."

In other ruminations on their findings, the marine biologists indicate that what they call the swift adaptation processes they observed may "have the potential to affect food-web dynamics and biogeochemical cycles on timescales of a few years, thus surpassing predicted rates of ongoing global change including ocean acidification." And they also note, in this regard, that "a recent study reports surprisingly high coccolith mass in an E. huxleyi population off Chile in high-CO2 waters (Beaufort et al., 2011)," which observation is said by them to be indicative of "across-population variation in calcification, in line with findings of rapid microevolution identified here."

## China

### AT: South China Seas

#### No SCS escalation---China can’t project power, US intervention solves

James Dobbins 12, directs the International Security and Defense Policy Center at the RAND Corporation, previously served as American Ambassador to the European Community and Assistant Secretary of State, August/September 2012, “War with China,” Survival, Vol. 54, No. 4, p. 7-24

Depending on the nature and severity of a conflict, US objectives could range from enforcing freedom of navigation against a Chinese effort to control maritime activities in the South China Sea, to helping the Philippines defend itself against an air and maritime attack, to supporting Vietnam and shielding Thailand (another treaty ally) in the event of a land war in Southeast Asia.

Any likely contingency in the South China Sea or Southeast Asia would make demands on US air and naval power to assure friendly dominance of the battlespace. A war on land could create a demand for US land forces, especially special-forces and forced-entry capabilities.

China’s current ability to project substantial power into the South China Sea region is limited; in particular, China’s land-based combat aircraft lack adequate range to operate efficiently so far from home. This assessment will change if China builds aircraft-carrier and air-refuelling capabilities in the coming years. Direct defence in the South China Sea and Southeast Asia should remain a viable strategy for the next 20 years.

#### No SCS conflict escalation---economics check---our ev assumes squo instability

Creehan 12 – Senior Editor of the SAIS Review of International Affairs (Sean, “Assessing the Risks of Conflict in the South China Sea,” Winter/Spring, SAIS Review, Vol. 32, No. 1)

Regarding Secretary Clinton’s first requirement, the risk of actual closure of the South China Sea remains remote, as instability in the region would affect the entire global economy, raising the price of various goods and commodities. According to some estimates, for example, as much as 50 percent of global oil tanker shipments pass through the South China Sea— that represents more than three times the tanker traffic through the Suez Canal and over five times the tanker traffic through the Panama Canal.4 It is in no country’s interest to see instability there, least of all China’s, given the central economic importance of Chinese exports originating from the country’s major southern ports and energy imports coming through the South China Sea (annual U.S. trade passing through the Sea amounts to $1.2 trillion).5 Invoking the language of nuclear deterrence theory, disruption in these sea lanes implies mutually assured economic destruction, and that possibility should moderate the behavior of all participants. Furthermore, with the United States continuing to operate from a position of naval strength (or at least managing a broader alliance that collectively balances China’s naval presence in the future), the sea lanes will remain open. While small military disputes within such a balance of power are, of course, possible, the economic risks of extended conflict are so great that significant changes to the status quo are unlikely.

### AT: Relations

#### No impact to U.S.-China cooperation---it’s impossible to sustain

Aaron L. Friedberg 12, Professor of Politics and International Affairs at the Woodrow Wilson School of Public and International Affairs at Princeton University, September/October 2012, “Bucking Beijing,” Foreign Affairs, Vol. 91, No. 5, p. 48-58

Recent events have raised serious doubts about both elements of this strategy. Decades of trade and talk have not hastened China's political liberalization. Indeed, the last few years have been marked by an intensified crackdown on domestic dissent. At the same time, the much-touted economic relationship between the two Pacific powers has become a major source of friction. And despite hopes for enhanced cooperation, Beijing has actually done very little to help Washington solve pressing international problems, such as North Korea's acquisition of nuclear weapons or Iran's attempts to develop them. Finally, far from accepting the status quo, China's leaders have become more forceful in attempting to control the waters and resources off their country's coasts. As for balancing, the continued buildup of China's military capabilities, coupled with impending cuts in U.S. defense spending, suggests that the regional distribution of power is set to shift sharply in Beijing's favor.

WHY WE CAN'T ALL JUST GET ALONG

TODAY, CHINA'S ruling elites are both arrogant and insecure. In their view, continued rule by the Chinese Communist Party (CCP) is essential to China's stability, prosperity, and prestige; it is also, not coincidentally, vital to their own safety and comfort. Although they have largely accepted some form of capitalism in the economic sphere, they remain committed to preserving their hold on political power.

The CCP'S determination to maintain control informs the regime's threat perceptions, goals, and policies. Anxious about their legitimacy, China's rulers are eager to portray themselves as defenders of the national honor. Although they believe China is on track to become a world power on par with the United States, they remain deeply fearful of encirclement and ideological subversion. And despite Washington's attempts to reassure them of its benign intentions, Chinese leaders are convinced that the United States aims to block China's rise and, ultimately, undermine its one-party system of government.¶ Like the United States, since the end of the Cold War, China has pursued an essentially constant approach toward its greatest external challenger. For the most part, Beijing has sought to avoid outright confrontation with the United States while pursuing economic growth and building up all the elements of its "comprehensive national power," a Chinese strategic concept that encompasses military strength, technological prowess, and diplomatic influence. Even as they remain on the defensive, however, Chinese officials have not been content to remain passive. They have sought incremental advances, slowly expanding China's sphere of influence and strengthening its position in Asia while working quietly to erode that of the United States. Although they are careful never to say so directly, they seek to have China displace the United States in the long run and to restore China to what they regard as its rightful place as the preponderant regional power. Chinese strategists do not believe that they can achieve this objective quickly or through a frontal assault. Instead, they seek to reassure their neighbors, relying on the attractive force of China's massive economy to counter nascent balancing efforts against it. Following the advice of the ancient military strategist Sun-tzu, Beijing aims to "win without fighting," gradually creating a situation in which overt resistance to its wishes will appear futile.

The failure to date to achieve a genuine entente between the United States and China is the result not of a lack of effort but of a fundamental divergence of interests. Although limited cooperation on specific issues might be possible, the ideological gap between the two nations is simply too great, and the level of trust between them too low, to permit a stable modus vivendi. What China's current leaders ultimately want -- regional hegemony -- is not something their counterparts in Washington are willing to give. That would run counter to an axiomatic goal of U.S. grand strategy, which has remained constant for decades: to prevent the domination of either end of the Eurasian landmass by one or more potentially hostile powers.

The reasons for this goal involve a mix of strategic, economic, and ideological considerations that will continue to be valid into the foreseeable future.

#### US solar tariffs make cooperation impossible

AP 5/19/12 [“Ruling adds to China trade tension: POSSIBLE U.S. TARIFFS ON SOLAR-PANEL IMPORTS MAY THREATEN CLEAN ENERGY COOPERATION,” <http://www.stltoday.com/business/local/ruling-adds-to-china-trade-tension/article_c7071e82-78b7-5d95-b943-a8c6e5cc93de.html>]

POSSIBLE U.S. TARIFFS ON SOLAR-PANEL IMPORTS MAY **THREATEN CLEAN ENERGY COOPERATION**¶ BEIJING • China's government on Friday rejected a U.S. antidumping ruling against its makers of solar power equipment, and Chinese manufacturers warned possible higher tariffs might hurt efforts to promote clean energy.¶ The conflict has worsened U.S.-Chinese trade tensions. The two governments have **pledged to cooperate** in developing renewable **energy** but accuse each other of violating free-trade pledges by subsidizing their own manufacturers.¶ "The U.S. ruling is unfair, and the Chinese side expresses its extreme dissatisfaction," said a Commerce Ministry spokesman, Shen Danyang, in a statement.¶ Shen warned **the ruling might harm clean energy cooperation** but gave no indication how Beijing might respond. Some American companies that oppose the trade probe have warned China might retaliate against U.S. suppliers.

## NREL

### AT: Rare Earth Elements

**No impact to Chinese rare earth metals - we’ll have a sufficient domestic supply before we successfully mine**

**Bourzac, 10** (12/22/10, Katherine, Technology Review, “US Undermining China's Monopoly on Rare Earth Elements,” <http://www.sott.net/articles/show/220384>)

Full operations will start at a U.S. mine by the end of next year. Molycorp has secured the permits and funding needed to restart production at a mine in Mountain Pass, California, that would become the first U.S. source of rare earth elements in more than a decade. The mine is one of the world's richest deposits of these elements, which are critical for making components found in a wide range of technologies. On Tuesday, the company announced that it will partner with Hitachi Metals of Japan to turn materials from the mine into high-strength magnets, which are vital in electric vehicles, wind turbines, and many other products. China currently has a lock on the market for rare earth materials: in 2009 it provided 95 percent of the world's supply, or 120,000 tons. This concentration of supply has become a major issue in recent months, particularly after China temporarily blocked exports of these materials to Japan in September. A Critical Materials Strategy document issued by the U.S. Department of Energy last week points to the "risk of supply disruption" in the short term. Worldwide demand for rare earth elements was 125,000 tons in 2010 and is expected to rise to 225,000 tons by 2015. The mine is a 50-acre open pit about 50 miles outside Las Vegas, surrounded by a stark landscape of red-brown mountains, Joshua trees, and the occasional cactus. Molycorp has begun draining groundwater that seeps into the bottom of the pit and removing areas of rock called "overburden" to expose a layer of bastnäsite, a mineral rich in rare earth elements. Expansion of operations will push the mine from a depth of 500 feet to 1,000 feet in the coming years. By 2012, the revamped U.S. mine is expected to produce around 20,000 tons of rare earth materials per year. Molycorp plans to use new processing techniques that it claims are more environmentally friendly and less expensive than conventional methods. The Mountain Pass mine used to be the world's biggest supplier of rare earth elements, but it closed in 2004, after a 1998 wastewater leak and the arrival of Chinese suppliers that offered lower prices. (One reason for the lower prices is that nearly half the rare earths produced in China are made as a by-product of iron mining.) Molycorp expects to sell about 3,000 tons of rare earths this year, produced from ore stockpiled before the mine was closed. It is also gearing up for active mining, with financial support from an initial public offering this summer and recent investment from Japanese firm Sumimoto. The company's total projected production could meet the current demand for rare earths in the United States. Molycorp has not disclosed who its customers will be, but CEO Mark Smith said on a tour of the mine last week that it has inked contracts to sell 25 percent of the 20,000 tons of material it expects to produce during the first year of full-scale operations, in 2012, and has letters of intent to sell the rest. "We're focused on the U.S., Japanese, and European markets," he said. Under current permits, the company could potentially double production, to 40,000 tons a year, beyond 2012. Smith says demand is likely to exceed supply for some years to come, even if Lynas Corporation's Mount Weld mine outside Perth, Australia, begins production as expected in summer 2011. That company expects to produce 15,000 tons of rare earth elements a year by 2015.

### AT: Primacy

#### **No impact to nuclear arsenal cuts or nuclear primacy**

Elkind 12 – David J. Elkind is a research intern for the Project on Nuclear Issues. May 22nd, 2012, "American Nuclear Primacy: the End of MAD or a New START?" csis.org/blog/american-nuclear-primacy-end-mad-or-new-start

External to these considerations, achieving nuclear primacy would be a pyrrhic victory. The preceding analysis assumes that the United States is in possession of perfect intelligence on the locations and attributes of Russian nuclear weapons facilities and is able to carry out such an attack unhindered by air- or missile-defenses (and concludes such an attack is ill-advised despite possessing perfect information). Even if mobile missiles do not continuously patrol, it would make sense for Russia to shuttle them from one garrison to another in order to decrease Russia’s opponents’ confidence in accounting for all of them. Furthermore, Russia’s decision to deploy its mobile forces in the event of a crisis (or continuously as a matter of policy) could spark concerns in Washington that either a Russian attack is immanent or simply that United States’ confidence in a first-strike option has evaporated, creating further perceptions of insecurity and upsetting the strategic environment which, in the mind of US policymakers, has assumed nuclear primacy. What’s more, mobile deployments are a cheap, easy countermeasure that would effectively negate the confidence gained (such as any is gained) from believing that the United States has nuclear primacy. Achieving, and then maintaining**, a position of primacy introduces several significant strategic concerns of its own, and would hardly enhance the security of the** U**nited** S**tates or the international system**.¶ I would like to advance this line of argumentation one step further. If this model accurately reflects reality and a Liber and Press-style counterforce strike on Russia’s nuclear arsenal is unlikely to succeed, then deep cuts to the nuclear arsenal and the decision to abandon counterforce targeting **gains credibility.** That is, deep cuts to the nuclear arsenal would not mean abandoning counterforce doctrine because that has already happened. Simply put, attempting the counterforce attack would include an inescapable risk to the United States – and we can rest easier knowing that this is the case.

#### Nuclear modernization isn’t k2 deterrence

Travis Sharp 10, Research Associate at the Center for a New American Security, “The Numbers Game”, Nukes of Hazard, Center for Arms Control & Nonproliferation, 2-24, http://www.nukesofhazardblog.com/story/2010/2/24/123221/390

This complaint is regularly expressed by Keith Payne, the paragon of conservative nuclear strategists. For instance, Payne wrote last year that “informed estimates about the functioning of deterrence must also include assessments of opponent decision-making processes, values, intentions, histories, levels of determination, goals, stakes and worldviews.” Since deterrence is not a quantifiable or scientific outcome, Payne concluded,¶ In the contemporary strategic environment, it is impossible to provide high-confidence, quantitatively precise and enduring answers to the question “how much is enough” for deterrence. The familiar game of linking some specific number of nuclear weapons with confidence in deterrence and the adequacy of U.S. strategic forces in general remains popular, but it now is unsupportable…even if done rigorously, identifying the requirements for deterrence is an incomplete basis for defining the necessary parameters for U.S. strategic forces in general.¶ Before considering whether this “numbers game” critique is justified, a comment is needed on Bolton’s and Payne’s methodology. Deterrence indubitably involves historical, cultural, psychological, and political calculations, as Payne suggests. NOH readers should recognize, however, that predicating deterrence on potential adversaries’ values, goals, stakes, and worldviews allows Bolton and Payne to configure U.S. nuclear forces according to how evil they perceive other countries to be. Do we really want to dismiss targeting-based deterrence analyses, such as Cimbala’s JFQ article and Lieber’s and Press’s Foreign Affairs appendix, as mere Cold War remnants and replace them with 1 inflammatory Ahmadinejad quote = 1 credible limited U.S. counterforce option? Payne is arguing, laudably, for recognizing deterrence’s complexity. Yet will an injection of red-blooded Manichaeism make U.S. nuclear policy more effective? I doubt it.¶ Payne is right that it is difficult to formulate “quantitatively precise” answers to deterrence questions, but that uncertainty doesn’t necessarily justify rounding up to the larger U.S. nuclear arsenal he would prefer. As Charles Glaser convincingly put it, “Deterrence is likely to be effective because, as was argued extensively during the Cold War, even relatively little credibility is sufficient when the costs of retaliation are so large.” In other words, a little nuke still goes a long way.

### Primacy Bad

#### **Primacy causes global arms races and nuclear war---perception of increased US capability causes enemies to preemptively strike first---also causes shifts in nuclear posture that causes unauthorized and accidental launch**

Elkind 12 – David J. Elkind is a research intern for the Project on Nuclear Issues. May 22nd, 2012, "American Nuclear Primacy: the End of MAD or a New START?" csis.org/blog/american-nuclear-primacy-end-mad-or-new-start

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

# 2NC

## ASPEC

### Overview

#### No offense for the aff---the fact that they were willing to defend Congress for DA’s proves they have the ability to do the research to defend their agent and just chose to arbitrarily make agent counterplans non-competitive and willingly chose not to put it in their plan.

**Agent counterplans debates are valuable:**

#### Energy Education---Valentine says the agent that implements energy policy such as R&D is enormously important to the success of energy projects---for example we can’t argue that other sources of funding or putting the NREL not under the jurisdiction of Congress would be good.

#### Policy is made entirely through specification of a single agency or program

Melia 5 – Thomas O. Melia, Deputy Assistant Secretary of State, Director of Research at the Institute for the Study of Diplomacy at Georgetown, September 2005, “The Democracy Bureaucracy: The Infrastructure of American Democracy Promotion,” http://www.princeton.edu/~ppns/papers/democracy\_bureaucracy.pdf

This paper is a description of the infrastructure available to President Bush (and his successors) to advance this agenda. As elaborated in the pages that follow, there exists today – and mostly existed at the start of the present Bush presidency – a rather dispersed community of several thousand men and women, inside and outside of the U.S. Government, working in an array of government agencies, multinational bodies and private organizations, centered in the U.S. though extending through a variety of multinational networks around the globe – who have in the past 20 years or so developed experience (and in some cases real expertise) in programs and policies that can contribute to democratic development in other countries.

There is, however, no “command and control center” of the democracy promotion community, no single place where overarching strategy is developed or coordinated, even within the sub-community that is the United States Government. This may be due to the nature of the subject, or a reflection of the character of the actors. Perhaps the unique operating environments that arise in each case mean that a new configuration of players must be assembled. Though efforts are currently underway to bring greater strategic coherence to the effort, and the bureaucratic nomenclature has been modified to underscore the intention to do so, it may well be that political development cannot be controlled or directed in the way that military or diplomatic undertakings often can be.

#### Key negative generic especially vs. new affs they had all the time they want to research this aff they should have taken the time to research a defense of their agent.

## China

### Chinese Growth---Impact Overview

#### Chinese economic decline accesses every impact --- destabilizes Asia and draws multiple states into conflict --- overstretches the US military and crushes an export base for US companies --- threats to the CCP means they lashout with nukes --- that outweighs and causes extinction

### Chinese Growth---Plate 2k3 Impact

#### Chinese economic collapse causes World War III

Plate 3 Tom is the Distinguished Scholar of Asian and Pacific Studies at Loyola Marymount University. Mr. Plate is a member of the Pacific Council on International Policy, the Century Association of New York and the Phi Beta Kappa Society. “WHY NOT INVADE CHINA?” June 30, The Straits Times, Lexis

But imagine a China disintegrating -- on its own, without neo-con or CIA prompting, much less outright military invasion -- because the economy (against all predictions) suddenly collapses. That would knock Asia into chaos. Refugees by the gazillions would head for Indonesia and other poorly border-patrolled places, which don't want them and can't handle them; some in Japan might lick their chops for World War II Redux and look to annex a slice of China. That would send small but successful Singapore and Malaysia -- once Japanese colonies -- into absolute nervous breakdowns. India might make a grab for Tibet, and while it does, Pakistan for Kashmir. Say hello to World War III Asia-style!

### Chinese Growth---XT Growth Key to Prevent CCP Collapse

#### CPP decline bypasses all defense---the economy is key---decline causes lashout

Friedberg 10, Professor of Politics and International Affairs – Princeton, Asia Expert – CFR (Aaron, “Implications of the Financial Crisis for the US-China Rivalry,” Survival, Volume 52, Issue 4, August, p. 31 – 54)

Despite its magnitude, Beijing's stimulus programme was insufficient to forestall a sizeable spike in unemployment. The regime acknowledges that upwards of 20 million migrant workers lost their jobs in the first year of the crisis, with many returning to their villages, and 7m recent college graduates are reportedly on the streets in search of work.9 Not surprisingly, tough times have been accompanied by increased social turmoil. Even before the crisis hit, the number of so-called 'mass incidents' (such as riots or strikes) reported each year in China had been rising. Perhaps because it feared that the steep upward trend might be unnerving to foreign investors, Beijing stopped publishing aggregate, national statistics in 2005.10 Nevertheless, there is ample, if fragmentary, evidence that things got worse as the economy slowed. In Beijing, for example, salary cuts, layoffs, factory closures and the failure of business owners to pay back wages resulted in an almost 100% increase in the number of labour disputes brought before the courts.11 Since the early days of the current crisis, the regime has clearly been bracing itself for trouble. Thus, at the start of 2009, an official news-agency story candidly warned Chinese readers that the country was, 'without a doubt … entering a peak period of mass incidents'.12 In anticipation of an expected increase in unrest, the regime for the first time summoned all 3,080 county-level police chiefs to the capital to learn the latest riot-control tactics, and over 200 intermediate and lower-level judges were also called in for special training.13 Beijing's stimulus was insufficient At least for the moment, the Chinese Communist Party (CCP) appears to be weathering the storm. But if in the next several years the economy slumps again or simply fails to return to its previous pace, Beijing's troubles will mount. The regime probably has enough repressive capacity to cope with a good deal more turbulence than it has thus far encountered, but a protracted crisis could eventually pose a challenge to the solidarity of the party's leadership and thus to its continued grip on political power. Sinologist Minxin Pei points out that the greatest danger to CCP rule comes not from below but from above. Rising societal discontent 'might be sufficient to tempt some members of the elite to exploit the situation to their own political advantage' using 'populist appeals to weaken their rivals and, in the process, open[ing] up divisions within the party's seemingly unified upper ranks'.14 If this happens, all bets will be off and a very wide range of outcomes, from a democratic transition to a bloody civil war, will suddenly become plausible. Precisely because it is aware of this danger, the regime has been very careful to keep whatever differences exist over how to deal with the current crisis within bounds and out of view. If there are significant rifts they could become apparent in the run-up to the pending change in leadership scheduled for 2012. Short of causing the regime to unravel, a sustained economic crisis could induce it to abandon its current, cautious policy of avoiding conflict with other countries while patiently accumulating all the elements of 'comprehensive national power'. If they believe that their backs are to the wall, China's leaders might even be tempted to lash out, perhaps provoking a confrontation with a foreign power in the hopes of rallying domestic support and deflecting public attention from their day-to-day troubles. Beijing might also choose to implement a policy of 'military Keynesianism', further accelerating its already ambitious plans for military construction in the hopes of pumping up aggregate demand and resuscitating a sagging domestic economy.15 In sum, despite its impressive initial performance, Beijing is by no means on solid ground. The reverberations from the 2008-09 financial crisis may yet shake the regime to its foundations, and could induce it to behave in unexpected, and perhaps unexpectedly aggressive, ways.

#### Growth decline threatens CCP rule---they’ll start diversionary wars in response

Shirk 7 Susan L. Shirk is an expert on Chinese politics and former Deputy Assistant Secretary of State during the Clinton administration. She was in the Bureau of East Asia and Pacific Affairs (People's Republic of China, Taiwan, Hong Kong and Mongolia). She is currently a professor at the Graduate School of International Relations and Pacific Studies at the University of California, San Diego. She is also a Senior Director of Albright Stonebridge Group, a global strategy firm, where she assists clients with issues related to East Asia. “China: Fragile Superpower,” Book

By sustaining high rates of economic growth, China’s leaders create new jobs and limit the number of unemployed workers who might go to the barricades. Binding the public to the Party through nationalism also helps preempt opposition. The trick is to find a foreign policy approach that can achieve both these vital objectives simultaneously. How long can it last? Viewed objectively, China’s communist regime looks surprisingly resil- ient. It may be capable of surviving for years to come so long as the economy continues to grow and create jobs. Survey research in Beijing shows wide- spread support (over 80 percent) for the political system as a whole linked to sentiments of nationalism and acceptance of the CCP’s argument about “stability first.”97 Without making any fundamental changes in the CCP- dominated political system—leaders from time to time have toyed with reform ideas such as local elections but in each instance have backed away for fear of losing control—the Party has bought itself time. As scholar Pei Minxin notes, the ability of communist regimes to use their patronage and coercion to hold on to power gives them little incentive to give up any of that power by introducing gradual democratization from above. Typically, only when communist systems implode do their political fun- damentals change.98 As China’s leaders well know, the **greatest political risk** lying ahead of them is the possibility of an **economic crash** that throws millions of workers out of their jobs or sends millions of depositors to withdraw their savings from the shaky banking system. A massive environmental or public health disaster also could trigger regime collapse, especially if people’s lives are endangered by a media cover-up imposed by Party authorities. **Nationwide rebellion becomes a real possibility when large numbers of people are upset** about the same issue at the same time. Another dangerous scenario is a domestic or international crisis in which the CCP leaders feel compelled to lash out against Japan, Taiwan, or the United States because from their point of view not lashing out might endanger Party rule.

### Chinese Growth---XT CCP Collapse-->War

#### CCP instability causes a nationalist takeover and a lashout resulting in war over Taiwan

James Paradise, contributing writer, **citing** Susan **Shirk**, a professor at UC San Diego’s Graduate School of IR and Pacific Studies. “Underestimating China's "resilient authoritarianism"?”, ASIA MEDIA NEWS DAILY, May 1, 2007, http://www.asiamedia.ucla.edu/article-eastasia.asp?parentid=68978)

Susan L. Shirk goes a long way to overcoming both of these problems (especially the latter) in regards to China. In her new book, China: Fragile Superpower, Shirk, a professor at University of California, San Diego's Graduate School of International Relations and Pacific Studies, offers an in-depth analysis of the major forces that drive Chinese politics. Her argument is that China's political leaders feel insecure and threatened, and that because of the fragile internal political order there could **be war between the** United States and China if relations between the two countries and others are not properly managed.¶ "The weak legitimacy of the Communist Party and its leaders' sense of vulnerability could cause China to behave rashly in a crisis involving Japan or Taiwan, and bring it into a military conflict with the **U**nited **S**tates," she writes.¶ According to Shirk, there are a number of dangers that China's political leaders have to contend with: the possibility of protectionism in the United States, large economic inequalities at home, unemployment of industrial workers, rural unrest, disgust with government corruption, the disintegration of China's state-run health care system and pollution. There is also the need for politicians to keep good relations with the People's Liberation Army, a factor that could partially account for the generous military budgets of recent years.¶ One of the biggest potential dangers, however, is nationalism. While **nationalism is used as a device to give legitimacy to the C**ommunist Party (along with commercialization and economic growth), it could also be turned against the Party. China's political leaders feel they cannot be too "soft" on Japan (with whom China harbors a particular historical grudge), worry that "losing" Taiwan could be the death knell for the regime and have a tricky balancing act with the **U**nited **S**tates, who many feel is out to thwart China's rise while being a critical component in China's economic modernization drive.¶ In the face of all these pressures, China's political leaders feel the need to exercise a heavy political hand. Shirk throws light on recent political events in quoting a former provincial Party head: "The Party's authority is gradually declining, and as a result, [Chinese President] Hu [Jintao] is less confident and more insecure than the leaders before him. When a leader feels insecure, he tightens controls."¶ Shirk also gives attention to analyzing the media. She notes that the Communist Party still has a lot of control in determining the content of print and television news and points to heavy government censorship of the Internet. But she says it is becoming more difficult to control information with media commercialization and new communication technologies. She says that these media industry developments could help facilitate the emergence of a political opposition in China.¶ One of the great strengths of Shirk's book is its intimate accounts of the events it describes, often told through personal experience. As a former Deputy Assistant Secretary of State during the Clinton administration, Shirk uses phrases such as "Mainland experts privately admitted," "Chinese officials told me" and "When I traveled to China." Shirk also tells some stories, such as the issue of a possible deployment of a U.S. theater missile defense system to protect Taiwan, from the Chinese point of view. This potential deployment, she says, was worrying to leaders in China because it might embolden Taiwan "to act provocatively."¶ The book is also praiseworthy for explaining some of the international dynamics that are causing China to act the way it does. In describing China National Offshore Oil Corporation's unsuccessful attempt to buy Union Oil Company of California (Unocal) because of political or other opposition in the United States, she argues that China is beginning to view energy competition in geopolitical terms rather than commercial terms.¶ The basic question about Shirk's argument, however, is whether China is really as fragile as she makes it out to be.¶ Shirk does not boldly predict that the Communist Party is going to collapse or that the authoritarian regime is in danger of being undermined. But her analysis does point in this direction, and she indicates that leaders fear such possibilities. To avoid such a fate, Shirk mentions a number of strategies that the **C**hinese **C**ommunist **P**arty might use to survive such as co-optation of opposition leaders, increasing freedom or, alternatively, increasing repression. She also notes that the authoritarian regime's longevity might be enhanced if it encouraged a less xenophobic nationalism, created a role for private business interests in foreign policy making, eased restraints on the media, increased civilian control of the military and started direct talks with Taiwan. Apart from these measures, however, the question is whether China is as brittle as Shirk suggests or whether its authoritarianism is highly, or at least moderately, resilient.

### Turns Taiwan

#### China growth key to preventing Taiwan invasion an global depression

Lewis 7 Dan, Director of the Economic Research Council, “The Nightmare of a Chinese Economic Collapse,” World Finance, 4-19-07, http://www.worldfinance.com/news/137/ARTICLE/1144/2007-04-19.html

According to Professor David B. Smith, one of the City’s most accurate and respected economists in recent years, potentially far more serious though is the impact that Chinese monetary policy could have on many Western nations such as the UK. Quite simply, China’s undervalued currency has enabled Western governments to maintain artificially strong currencies, reduce inflation and keep interest rates lower than they might otherwise be. We should therefore be very worried about how vulnerable Western economic growth is to an upward revaluation of the Chinese yen. Should that revaluation happen to appease China’s rural poor, at a stroke, the dollar, sterling and the euro would quickly depreciate, rates in those currencies would have to rise substantially and the yield on government bonds would follow suit. This would add greatly to the debt servicing cost of budget deficits in the USA, the UK and much of Euro land. A reduction in demand for imported Chinese goods would quickly entail a decline in China’s economic growth rate. That is alarming. It has been calculated that to keep China’s society stable – ie to manage the transition from a rural to an urban society without devastating unemployment - the minimum growth rate is 7.2 percent. Anything less than that and unemployment will rise and the massive shift in population from the country to the cities becomes unsustainable. This is when real discontent with communist party rule becomes vocal and hard to ignore. It doesn’t end there. That will at best bring a global recession. The crucial point is that communist authoritarian states have at least had some success in keeping a lid on ethnic tensions – so far. But when multi-ethnic communist countries fall apart from economic stress and the implosion of central power, history suggests that they don’t become successful democracies overnight. Far from it. There’s a very real chance that China might go the way of Yugoloslavia or the Soviet Union – chaos, civil unrest and internecine war. In the very worst case scenario, a Chinese government might seek to maintain national cohesion by going to war with Taiwan – whom America is pledged to defend. Today, people are looking at Chang’s book again. Contrary to popular belief, foreign investment has actually deferred political reform in the world’s oldest nation. China today is now far further from democracy than at any time since the Tianneman Square massacres in 1989. Chang’s pessimistic forecast for China was probably wrong. But my fear is there is at least a chance he was just early.

### Chinese Growth---Global Economy Impact

#### China’s key to the global economy

Eichengreen et al. 11-Barry Eichengreen is George C. Pardee and Helen N. Pardee Professor of Economics and Political Science, University of California, Berkeley,a Research Associate, National Bureau of Economic Research, Cambridge, Massachusetts, and Research Fellow, Centre for Economic Policy Research, London, United Kingdom, Kwanho Shin is a professor in the Department of Economics, Korea University, and Donghyun Park is Principal Economist at the Economics and Research Department of the Asian Development Bank, March 2011, "WHEN FAST GROWING ECONOMIES SLOW DOWN: INTERNATIONAL EVIDENCE AND IMPLICATIONS FOR CHINA", NATIONAL BUREAU OF ECONOMIC RESEARCH, http://www.nber.org/papers/w16919.pdf?new\_window=1

In addition, the large and fast-growing Chinese economy is increasingly viewed as a key engine of growth for the world economy. The advanced industrial countries, the traditional engines of global growth, have inherited serious problems from the crisis: weakened household balance sheets, increased public debts, and still troubled financial systems. In contrast, China experienced few problems as a result of the crisis. There were few bank and enterprise failures. At the height of the crisis in 2009, growth “slowed” just to 9.2 per cent. Both advanced and developing countries benefited from China’s resilience. Robust Chinese demand lifted capital goods exports from Germany and Japan and commodity exports from Africa and Latin America. In particular, demand from China contributed substantially to recovery in East and Southeast Asia, which has close trade linkages with China.

### Chinese Growth---Turns Warming

#### Only Chinese clean tech leadership solves global environmental sustainability and runaway warming---they’re uniquely suited to South-South collaboration that spreads clean tech globally through the developing world

Changhua Wu 12, Greater China Director, The Climate Group, July 2012, “CONSENSUS AND COOPERATION FOR A CLEAN REVOLUTION,” http://thecleanrevolution.org/\_assets/files/TCG\_ChinaCC\_web.pdf

The global environmental threats that loomed on the horizon in 1992 are now real and growing challenges. Climate change, for example, was then seen as a significant but still distant threat. Emissions, however, have continued to rise, largely in developing countries, as governments have sought to raise living standards and free people from poverty. China’s per capita emissions have risen fourfold, and today it is the world’s largest emitter. The window for keeping the rise in global temperatures below 2°C to avoid the worst impacts of climate change is now rapidly closing. Many believe it may already be shut.

In parallel to population and environmental changes, the global economic order has also been transformed. In 1992, China’s economy was one fifth the size of the United States’; it is now set to become the world’s largest within this decade. And where China has led, other emerging economies have followed. Both Brazil and India, for example, have overtaken the UK, which was until recently the world’s fifth largest economy\*.

This rise of China and other emerging economies is shaping a new global political landscape – one that is not yet fully reflected in international institutions and processes. This transition is not only creating new centers of influence, but also tremendous economic, developmental and business opportunities.

This report – a collaborative effort between The Climate Group and the Chinese Academy of Sciences’ Institute of Policy and Management – was written with these profound changes, as well as China’s upcoming leadership changeover, in mind.

The report highlights what Chinese decision and policymakers already know: that 20 years of extraordinary economic growth have delivered major material and social benefits, but at considerable environmental cost. But it also underlines that both China’s future, and the world’s ability to undertake a ‘clean revolution’ to address global sustainability problems while ensuring long-term prosperity for all, are closely intertwined.

The green development pathway for China sketched out in this report – and the essential conditions necessary for its achievement – will not only shape the world of the coming decades, but will depend on global cooperation to be truly attainable. For this reason, we propose a simple framework for consensus and cooperation to help overcome the impasse in so many international political arenas, and enable all countries to work together to solve global sustainability issues.

The key point is that the old paradigm of industrialized countries driving change and pulling the developing world behind, no longer holds true - if it ever really did. There is much other countries can learn from China’s growth over the last two decades. The country’s success is built on giving business long-term policy and investment certainty, providing active support for industries of the future and focusing on structural change rather than shortterm profits. All these are features central to a successful, long-term global strategy for sustainability – a fact recognized by the handful of companies around the world that have put sustainability at the heart of their business - but that are far from universally adopted. China could also take the lead in more specific areas. A few ideas come to mind:

— The new Chinese leadership could guide the creation of the international consensus and cooperation framework outlined in this report, helping break current distrust and negotiation deadlocks.

— With its trade surplus and huge reserves, China could become the major financier of green growth in the developing world. It could issue green infrastructure bonds that would dwarf the funding available at present, that would drive markets for the higher value-add green products that will be at the heart of China’s future growth.

— With growing investment in innovation and research and development, China could pioneer a new model of South-South collaborative clean technology development and deployment.

### Chinese Growth---Relations/Warming

#### Chinese growth key to peaceful integration and relations

Edward S. Steinfeld 2010 is Associate Professor of Political Science at the Massachusetts Institute of Technology PLAYING OUR GAME Why China’s Economic Rise Doesn’t Threaten the West p 229

At least eight successive U.S. presidential administrations, from Nixon to Obama, have sought to integrate China into the global economy and make it a stakeholder in the existing international order. In choosing to play our game, China has effectively accepted that role and done so mostly on our terms. That is an extraordinary outcome that bodes well for the many differences and disputes that separate our nations. It is particularly important now, given that in certain pressing areas of global concern—climate change paramount among them—no solution is possible without the cooperation of both the United States and China.¶ For Americans, the challenge now is to recognize the opportunities that China’s particular style of global integration represents. Of course, Americans today, particularly as we climb out of a fi nancial crisis, face urgent economic problems. Frankly, even in the best of times over the past decade, middle-class Americans have not had it easy. Wages have failed to keep up with economic growth. Income disparities have deepened. Employment, in ways, ironically, not so different from what has occurred in China, has become euphemistically fl exible: uncertain, temporary, and often devoid of benefi ts. Health-care costs have skyrocketed. And in many cases, jobs in manufacturing and traditional industry have disappeared, most recently with the demise of the U.S. auto industry. All of these things have happened, and many Americans have suffered as a result.¶ It would be a great mistake, however, to look abroad for sources of blame. The United States today accounts for almost 25 percent of total global economic output. China, despite all its growth in recent years, accounts for 6 percent. China is not the source of America’s economic problems. As the dominant force in the global economy, America to a greater extent than any other country is the determinant of its own fate. Many of the problems we face today are of our own making—ones related to political choices we have made, personal consumption patterns we have engaged in, regulatory lapses we have tolerated, and ideological blinders we have willingly borne. None of these problems, however, is insurmountable. And none can seriously threaten the single asset that we as a nation possess in unsurpassed quantity: our capacity for innovation and entrepreneurship. It is neither intellectually sound nor pragmatically useful to point the finger of blame abroad, whether at China or anybody else. The seeds for our renewal reside within.¶ What we can do, however, is craft a situation in which, through our own renewal, we foster positive change in others and growing stability across the global system. That China today, the fastest growing economy in the world, is playing our game marks an incredible opportunity for everybody. China today is doing what we in the United States and the advanced industrial West more broadly have for decades hoped it would do. It has invested itself in our global system, our game basically. Consequently, now more than ever, we must move boldly and responsibly to renew rather than abandon our own investment in that game. We need not, and in fact should not, embrace the Chinese government and all that it does. We must, however, embrace the change process in which China is engaged. It is in our interest. It is in China’s interest. And it is in the world’s interest.

### Chinese SoPo---Korean War Scenario

#### Chinese soft power key to solve Korean conflict

Shambaugh 4 (David Shambaugh, Director of the China Policy Program in the Elliott School of International Affairs and Professor of Political Science and International Affairs at The George Washington University, The Center for Strategic and International Studies and the Massachusetts Institute of Technology, International Security, “China Engages Asia; Reshaping the Regional Order”)

China's strategy for building ties with South Korea has both an economic motive and a strategic dimension. In the early 1990s, Chinese strategists concluded [End Page 79] that China would have little leverage in shaping the eventual outcome of the divided Korean Peninsula if it did not enjoy strong ties with South Korea. Improved ties would also offset any potential threat to China from the U.S.-South Korean alliance and presence of U.S. forces on the peninsula. Further, a more robust Chinese-South Korean relationship would blunt any attempt by Japan to gain a stronger foothold on the peninsula. Beijing's strategy has been a net success for Chinese strategic interests; the bourgeoning relationship has greatly benefited both countries, and it has become a central element in the evolving balance of power in Northeast Asia. The strong state of bilateral ties has also been a key factor in forging the six-party talks (hosted by China) concerning North Korea's pursuit of nuclear weapons. Beijing and Seoul have converging and closely coordinated positions in the talks.

#### Nuclear war

Chol 11 Kim Myong Chol is author of a number of books and papers in Korean, Japanese and English on North Korea, including Kim Jong-il's Strategy for Reunification. He has a PhD from the Democratic People's Republic of Korea's Academy of Social Sciences "Dangerous games" Aug 20 www.atimes.com/atimes/Korea/MH20Dg01.html

The divided and heavily armed Korean Peninsula remains the most inflammable global flashpoint, with any conflict sparked there likely to become a full-blown thermonuclear war involving the world's fourth-most powerful nuclear weapons state and its most powerful. ¶ Any incident in Korea by design, accident, or miscalculation could erupt into a devastating DPRK-US war, with the Metropolitan US serving as a main war theater. ¶ Rodong Sinmun warned on August 16: "The Korean Peninsula is faced with the worst crisis ever. An all-out war can be triggered by any accident." ¶ Recent incidents illustrate the real danger of miscalculation leading to a total shooting war, given the volatile situation on the Land of Morning Calm. ¶ 1. The most recent case in point is the August 10 shelling of North Korea by the South. Frightened South Korea marines on Yeonpyeong Island mistook three noises from a North Korean construction site across the narrow channel for artillery rounds, taking an hour to respond with three to five artillery rounds. ¶ The episode serves as a potent reminder to the world that the slightest incident can lead to war. A reportedly malfunctioning firefinder counter-artillery radar system seems to partly account for the panicky South Korean reaction. ¶ South Korean conservative newspaper the Joong Ang Daily reported August 17: ¶ "A military source said that radar installed to detect hostile fire did not work last week when North Korea fired five shots toward the Northern Limit Line (NLL), the disputed maritime border, on Aug 10. ¶ "'We must confirm the location of the source of the firing through the ARTHUR (Artillery Hunting Radar) and HALO (hostile artillery location) systems, but ARTHUR failed to operate, resulting in a failure to determine the source of the fire,' said the source." ¶ BBC reported on November 25 last year the aggressive nature of troops on the South Korea-held five islands in North Korean waters. ¶ "Seen in this sense, they (five islands including Yeonpyeong Island) could provide staging bases for flanking amphibious attacks into North Korea if South Korea ever takes the offensive." ¶ 2. An almost catastrophic incident took place at dawn on June 17 near Inchon. South Korean marines stationed on Gyodong Island near Inchon Airport fired rifles at a civilian South Korean jetliner Airbus A320 with 119 people aboard as it was descending to land, after mistaking it for a North Korean military aircraft. ¶ The Asiana Airlines flight was carrying 119 people from the Chinese city of Chengdu. ¶ About 600 civilian aircraft fly near the island every day, including those flying across the NLL, but they face a perennial risk of being misidentified as a hostile warplane. ¶ It is nothing short of a miracle that the Airbus A320 was not hit and nobody harmed. ¶ 3. On March 26, 2010, the high-tech South Korean corvette Sokcho fired 130 rounds at flocks of birds, mistaking them for a hostile flying object. The innocent birds looked like a North Korean warplane just at a time when an alleged North Korean midget submarine had managed to escape with impunity after torpedoing the hapless Cheonan deep inside security-tight South Korean waters. ¶ The South Korean military's habit of firing at the wrong target increases the risk of an incident running out of control. ¶ CNN aired a story December 16, headlined: "General: South Korea Drill Could Cause Chain Reaction." ¶ F/A-18 pilot-turned Marine Corp General James Cartwright told the press in the Pentagon, "What we worry about, obviously, is if that it [the drill] is misunderstood or if it's taken advantage of as an opportunity. ¶ "If North Korea were to react to that in a negative way and fire back at those firing positions on the islands, that would start potentially a chain reaction of firing and counter-firing. ¶ "What you don't want to have happen out of that is ... for us to lose control of the escalation. That's the concern." ¶ Agence France-Presse on December 11 quoted former chief of US intelligence retired admiral Dennis Blair as saying that South Korea "will be taking military action against North Korea". ¶ New Korean war differs from other wars¶ Obama and the Americans seem to be incapable of realizing that North Korea is the wrong enemy, much less that a new Korean War would be fundamentally different from all other wars including the two world wars. ¶ Two things will distinguish a likely American Conflict or DPRK-US War from previous wars. ¶ The first essential difference is that the US mainland will become the main theater of war for the first time since the US Civil War (1861-1865), giving the Americans an opportunity to know what it is like to have war fought on their own land, not on faraway soil. ¶ The US previously prospered by waging aggressive wars on other countries. Thus far, the Americans could afford to feel safe and comfortable while watching TV footage of war scenes from Afghanistan, Iraq, Pakistan and Libya as if they were fires raging across the river. ¶ The utmost collateral damage has been that some American veterans were killed or returned home as amputees, with post traumatic stress disorder, only to be left unemployed and homeless. ¶ However, this will no longer be the case. ¶ At long last, it is Americans' turn to have see their homeland ravaged.¶ An young North Korea in 1950-53 was unable to carry the war all the way across the Pacific Ocean to strike back, but the present-day North Korea stands out as a fortress nuclear weapons state that can withstand massive American ICBM (Intercontinental ballistic missile) attacks and launch direct retaliatory transpacific strikes on the Metropolitan USA. ¶ The second essential difference is that the next war in Korea, that is, the American Conflict or the DPRK-USA War would be the first actual full-fledged nuclear, thermonuclear war that mankind has ever seen, in no way similar to the type of nuclear warfare described in science fiction novels or films. ¶ North Korea is unique among the nuclear powers in two respects: One is that the Far Eastern country, founded by legendary peerless hero Kim Il-sung, is the first country to engage and badly maul the world's only superpower in three years of modern warfare when it was most powerful, after vanquishing Nazi Germany and Imperial Japan. ¶ The other is that North Korea is fully ready to go the length of fighting [hu]mankind's first and last nuclear exchange with the US. ¶ The DPRK led by two Kim Il-sungs - the ever-victorious iron-willed brilliant commander Kim Jong-il and his heir designate Kim Jong-eun - is different from Russia under Nikita Khrushchev which backed down in the 1962 Cuban missile crisis. ¶ Khrushchev and his company never fought the Americans in war. As a rule, most countries are afraid to engage the Americans. As the case is with them, North Korea is the last to favor war with the Americans. ¶ However, it is no exaggeration to say that the two North Korean leaders are just one click away from ordering a retaliatory nuclear strike on the US military forces in Guam, Hawaii and metropolitan centers on the US mainland. ¶ On behalf of Supreme Leader Kim Jong-il, Kim Jong-eun will fire highly destructive weapons of like Americans have never heard of or imagined to evaporate the US. ¶ The North Koreans are too proud of being descendents of the ancient civilizations of Koguryo 2,000 years ago and Dankun Korea 5,000 years ago, to leave the Land of morning Calm divided forever with the southern half under the control of the trigger-happy, predatory US. The North Koreans prefer to fight and die in honor rather than kowtow to the arrogant Americans. ¶ At the expense of comforts of a better life, North Koreans have devoted more than half a century to preparing for nuclear war with the Americans. All available resources have been used to convert the whole country into a fortress, including arming the entire population and indigenously turning out all types of nuclear thermonuclear weapons, and developing long-range delivery capabilities and digital warfare assets. ¶ An apocalyptic Day After Tommorow-like scenario will unfold throughout the US, with the skyscrapers of major cities consumed in a sea of thermonuclear conflagration. The nuclear exchange will begin with retaliatory North Korean ICBMs detonating hydrogen bombs in outer space far above the US mainland, leaving most of the country powerless. ¶ New York, Washington, Chicago, San Francisco and major cities should be torched by ICBMs streaking from North Korea with scores of nuclear power stations exploding, each spewing as much radioactive fallout as 150-180 H-bombs.

### Uniqueness---Chinese Growth---AT: Inflation/Overheating

#### No overheating

WSJ 12-9, MarketWatch, “China’s inflation not such a worry for now”, http://blogs.marketwatch.com/thetell/2012/12/09/chinas-inflation-not-such-a-worry-for-now/

Chinese data out Sunday showed that consumer prices picked up in November, but economists moved to dispel concerns about a possible price shock from rising food costs.¶ The consumer price index is a key data point for investors, with a desire to keep control of prices one of the main reasons behind China’s post-2009 policy-tightening moves.¶ China’s November data out over the weekend saw CPI growth at 2%, accelerating from 1.7% in October, with Jun Ma at Deutsche Bank noting the increase was due mainly to a sharp rise in vegetable prices, which climbed 11% month-on-month.¶ November’s food-related rebound in consumer inflation “is sparking fears about another inflationary shock next year,” said Xianfang Ren at Capital Economics.¶ However, Ren also said that while inflation is expected to pick up in 2013, it won’t likely be a dramatic rise.¶ “China now is actually standing at the late stage of contraction and early stage of expansion — likely a weak expansion cycle. Bottom line is that inflation won’t be the No. 1 concern next year.” Ren said.¶ HSBC Greater China chief economist Qu Hongbin also focused on the growth backdrop as a reason for expecting the data series to remain benign in 2013.¶ Demand is not running at full speed, he said, while modest growth means imported inflation risks should be manageable, as Chinese demand is so large that it plays a significant role in setting global commodities prices.¶ Qu said that “given that over 30% of China’s CPI basket is food, which is sensitive to weather conditions,” the CPI rate tends to be vulnerable to supply shocks. But he went some way to try to dispel fears about food prices.¶ “The good news is that the ninth consecutive good harvest – something not seen for half a century – will help maintain the balance of food supply and demand. The supply of live pigs is sufficient to avoid large price rises,” the economist said.¶ Beijing will likely be happy with CPI in a range of between 3% and 4% in 2013, Qu said, adding that “price stability remains a priority, not only for economic development, but also for social stability.”

#### Their ev is overly-pessimistic---China’s growth is strong

Ezrati 2/1 Milton is an economics writer at On Wall Street. “China's Economy Looking More Secure,” 2013, http://www.onwallstreet.com/ows\_issues/23\_2/china-s-economic-outlook-looking-more-secure-2682937-1.html

It seems China's economic outlook at last has stopped keeping investors up at night. For the last 18 months or so, experts have worried about China's prospects. Pointing to the economy's slow growth and its bursting real estate bubble, they have fretted over economic collapse, the possibility of a "hard landing," and the potential repercussions for the global economy and its financial markets.¶ Deeper analyses and real-world probabilities always suggested that **such fears were overblown**, but they have persisted nonetheless. Now **recent data** emerging from Beijing offers still more reason for investors to set aside their worst fears about China. Its economy, of course, will not recapture the astronomical growth rates of some years ago. But still, **it looks quite capable of sustaining real growth in the range of 7.5% to 8.5% a year.** Considering that this rate of expansion is more than four times the pace expected for the United States, it should provide considerable opportunity in Chinese investments, both directly and through equity purchases.

### Zero Sum---General (Not-Techy)

#### China’s ahead in clean tech development now and it’s zero sum---key to their economic growth

Bennhold 10 Katrin is a writer for the New York Times. “Race Is on to Develop Green, Clean Technology,” Jan 29, http://www.nytimes.com/2010/01/30/business/global/30davos.html?dbk&\_r=0

DAVOS, SWITZERLAND — It is shaping up to be **the** Great Game of the 21st century. To top officials and business executives here at the World Economic Forum, Topic A this year was the race to develop greener, cleaner technology, which is emerging as one of the critical factors in reshaping the world economy as emerging powers snap at the heels of battered Western economies. With the United States and China sizing each other up across the Pacific and Europe seeking to maintain its economic stature, it is a battle for potentially millions of jobs and trillions of dollars in export revenues. The outcome — which pits a venture capital-driven market approach relying on government subsides against a top-down system of state capitalism — has the potential to influence how economic and political systems evolve. Concern that China may be edging ahead in potentially lucrative growth sectors like renewable energy was palpable here, where senior officials from the United States and Europe warned that the West could not afford to be complacent. “Six months ago my biggest worry was that an emissions deal would make American business less competitive compared to China,” said Senator Lindsay Graham, a Republican from South Carolina who has been deeply involved in climate change issues in Congress. “Now my concern is that every day that we delay trying to find a price for carbon is a day that China uses to dominate the green economy.” He added: “China has made a long-term strategic decision and **they are going gang-busters**.” Christine Lagarde, the French finance minister, agreed. “**It’s a race and whoever wins that race will dominate economic development**,” she said. “The emerging markets are well-placed.”

#### China’s leading now but renewable incentives in the US reverse it---nothing else thumps the link

Ron Pernick 11, Managing Director, Clean Edge, “The Future of Clean Tech and Why I Can't Stop Thinking About China”, http://www.renewableenergyworld.com/rea/news/article/2011/11/the-future-of-clean-tech-and-why-i-cant-stop-thinking-about-china

The China Development Bank (CDB) is being relentless in its funding of clean-tech concerns. While American politicians battle it out over Solyndra’s collapse and potential loss to the government of $528 million, the Chinese are pumping billions into their clean-tech concerns, knowing full well that some of them will fail. The CDB put more than $30 billion in credit into its burgeoning solar companies in 2010, including Suntech Power, Trina, and Yingli. It recently announced financial commitments to ensure that its fledgling wind industry can join the ranks of GE, Vestas, and Siemens, allocating at least $15 billion in state-backed credit to China's biggest windmill makers Sinovel Wind Group and Xinjiang Goldwind Science & Technology. And China has plans to invest some $45 billion in smart-grid companies and technologies alone over the next five years. ¶ These investments haven’t gone unnoticed in the U.S., and have been front and center in recent complaints that have claimed that China’s solar industry, for example, has an unfair trade advantage.¶ One of the other things that make China and the U.S. so different is that Chinese national and regional leadership is now fully aligned behind clean tech as an economic development and jobs growth strategy. They aren’t fighting amongst themselves about whether they should support clean energy, but are instead fighting to lead in the sector. To put it simply, China believes in renewables. At the same time, our inept Congress dukes it out over one bad investment and seems increasingly polarized at every turn. We have states like California, Oregon, Connecticut, New York, and Colorado that are committed to clean tech, but without federal support they are left to figure out the puzzle mostly on their own. ¶ China is getting ready to outsmart us. “When you look at the political leaders in China they are mostly scientists and engineers, many from the power industry,” says Jefferies managing director Jesse Pichel. “But in the U.S. politicians are mostly lawyers.” And it’s not just business and policy talent that seems to be expanding, but student achievement. Chinese students in Shanghai recently scored tops in the OECD Program for International Student Assessment (PISA) evaluation tests for math, science, and reading. It’s important to note that PISA usually evaluates student performance for entire countries, so while Shanghai’s results are impressive they are not necessarily representative of all of China. ¶ China’s clean-tech push, of course, will be riddled with future obstacles, potholes, and challenges. For example, approximately a third of China’s wind power had not been connected to the grid by the end of 2010, highlighting issues with grid connectivity keeping up with new capacity additions. There have also been complaints of everything from exploding wind turbines to pollution concerns at solar PV manufacturing plants, demonstrating serious environmental and quality control issues that could cause significant roadblocks in the nation’s push for clean-tech dominance. And, ongoing issues surrounding weak intellectual property protections in China continue to threaten foreign investment and participation within the country.¶ But do you think these business and infrastructure issues will unravel China’s commitment to its clean-tech build out? I don’t think so. Instead, China is redoubling its efforts in order to own as much of the clean-tech sector as it possibly can.¶ The U.S., on the other hand, has some political leaders that are ready to call it quits. The U.S. “can't compete with China to make solar panels and wind turbines,” U.S. Representative Cliff Stearns (R-Fla.) recently told National Public Radio. Imagine if our earlier tech revolutionaries in aerospace, computing, and the Internet had policymakers with such weakened spines -- we’d be a mere shadow of our current selves. ¶ No doubt America faces its own unique challenges, but it’s not time to give up. Instead, let’s tap our entrepreneurial spirit, regain our clean-tech policy backbone, and get back in the business of 21st century innovation and leadership. The Chinese, I’m certain, will be doing nothing less.

### Zero-Sum---Supply Chain/Firm Relocation

#### The whole supply chain follows demand---means leadership is zero-sum---if they solve their advantages they definitely link to the DA

Caperton et al 11 Richard W. Caperton is a Policy Analyst with the Energy Opportunity team at the Center for American Progress; Kate Gordon is Vice President for Energy Policy at the Center; Bracken Hendricks is a Senior Fellow at the Center; and Daniel J. Weiss is a Senior Fellow and Director of Climate Strategy at the Center. “Helping America Win the Clean Energy Race,” Feb 7, http://www.americanprogress.org/wp-content/uploads/issues/2011/02/pdf/ces\_brief.pdf

This is no way to build a modern industry. Already we have seen cutting-edge solar power manufacturing companies begin to close their doors, either permanently or to move to other countries with strong and dedicated clean energy markets. Evergreen Solar Inc., for example, recently announced plans to close its Massachusetts plant to put more funds into solar panel manufacturing in China. The company followed on the heels of SpectraWatt Inc. in New York and Solyndra Inc. in California closing some of their facilities. As General Electric Co.’s chairman and chief executive, Jeff Immelt, said at last year’s ARPA-E summit, those countries with strong demand for renewable energy products will naturally pull these companies into their borders because “innovation and supply chain strength gets developed where the demand is the greatest. Similarly, wind manufacturers in Iowa, once a state leader in this industry, are laying off workers as new orders fail to materialize. Leading global financier Deutsche Bank decided to move billions of investment dollars out of the U.S. clean energy market, and into China and Europe as soon as it was clear there would be no comprehensive climate and energy legislation coming out of the 111th Congress. China and our other economic competitors in Asia, Europe, and emerging markets are not waiting for America to regroup. The home team can win the clean energy race These stories share a common theme: investment dollars leav[e]ing the United States to be deployed among our global competitors who have fully embraced the economic and environmental imperative to enter a new era of cleaner, more sustainable and domestic energy. China is the most striking example. In 2009, even as the United States was installing more wind turbines, China driven by stable long-term demand for its products, became the world’s largest manufacturer of wind power systems. It was already the world’s largest solar manufacturer and developer of efficient nuclear and coal technologies. All these countries have comprehensive programs in place to spur robust and stable demand for low-carbon energy, which then creates a market for businesses to manufacture and install the technologies to meet that demand. Last June, China announced its plan to meet a renewable energy standard of 20 percent by 2020, matching the European Union’s target. Germany has set a target of 60 percent by 2050. The country already gets 16 percent of all its power from renewables, well on its way to meeting this ambitious goal, and some think it may reach 100 percent by 2050. Denmark has gone a step further, actually announcing its intention to become 100 percent independent of fossil fuels by 2050, something that at least one of its islands has already achieved. This occurred in a country that in 1970 was almost completely dependent on foreign fossil fuels. These countries prove that strong clean energy standards build growing economies. But even more than that, strong clean energy standards are now imperative if we are to compete on the same playing field as China and Europe. America over the course of the 20th century took command of the Industrial Revolution and the communications revolution, and then led the world into the Information Age. It is time for us to lead the clean-tech revolution, too. Today, others are beating us to the punch, not because we lack the technology and innovation to lead this new revolution, but because we are not providing the market signals needed for our private-sector entrepreneurs need to invest over the long haul. This clean energy investment gap is rapidly becoming the greatest threat to America’s technology leadership.

### Zero-Sum---Investment

#### Investment is also zero-sum---plan causes flight from China by creating certainty in the US

Luke Schoen 12, World Resources Institute, “CLEAN TECH’S RISE, PART I: Will the U.S. and China Reap the Mutual Benefits?”, China FAQS issue brief, April 2012, http://www.chinafaqs.org/files/chinainfo/ChinaFAQs\_IssueBrief1\_MutualBenefits.pdf

China itself, meanwhile, is becoming a critical market. In¶ recent years, it has become the world’s largest source of,¶ and destination for, investment in clean energy.¶ 9¶ China is¶ expected to invest at least $300 billion in domestic clean¶ energy technologies over the next five years¶ 10¶ as part of its¶ drive to curb greenhouse gas emissions, gain economic¶ benefits, and improve energy security, in pursuit of¶ aggressive renewable energy deployment targets in its¶ 12¶ th¶ Five-Year Plan¶ 11¶ (see table).¶ “There is no doubt that the¶ country remains committed to the ongoing development¶ of its renewable energy sector,” notes a recent analysis¶ from Ernst & Young.¶ 12¶ The investment race, meanwhile,¶ is heating up. In 2010, China invested a world-leading $45¶ billion in clean energy, while the U.S. slipped to second¶ place with about $33.7 billion.¶ In 2011, however, the U.S.¶ recaptured the lead, with investment surging to¶ $48 billion, while China invested $45.5 billion.¶ 13¶ China’s clear commitment to clean energy has made it¶ “attractive to U.S. and international investors” because it¶ offers “the certainty they are looking for before investing,”¶ notes Deborah Seligsohn, a China specialist with the ¶ World Resources Institute and WRI’s ChinaFAQs project.¶ Companies including First Solar, GE, Duke Energy,¶ American Electric Power, and many other U.S. firms have¶ all invested or expressed interest in investing in China,¶ and “increasingly entrepreneurs with new ideas are¶ looking to China to make those ideas become a reality.”

### Uniqueness---Chinese Leadership

#### Chinese solar is globally dominant---they’re on track to control global tech exports

Solidiance 1/8 Solidiance is Asia’s premier marketing and innovation strategy consulting firm. “China’s Renewable Energy Sector: An Overview of Key Growth Sectors,” 2013, http://www.solidiance.com/whitepaper/china-renewable.pdf

Chinese companies have gained strength in terms of production quality and cost on a global scale in comparison to market developments of the last 2-3 years. According to Lu Fang, Secretary for the Solar PV Committee of the China Renewable Energy Society, Chinese firms are now developing technologies and efficiencies of their solar cells on a ‘world class scale’. Suntech is researching technology that will improve the efficiency of their mono and poly crystalline solar cells, with Trina Solar also reported to be increasing the efficiency of their solar cells at extremely fast rates. According to a senior electricity analyst from the US Energy Information Administration, opportunities for technological innovation in the solar sector are continually emerging, The analyst explains, “if someone were to come out with an inexpensive solar cell that is actually cost competitive with other electricity generation technologies, that would change the story of solar all over the world, not only in China – of all the companies with opportunity, the Chinese seem most likely to access such technology first”. Prices for solar module components are continuing to drop, allowing manufacturers to produce solar modules in greater volumes for more cost effective installations. For example, one component, called E.V.A, vital for manufacture of solar modules, has fallen by around 5RMB (US $0.80) per square metre in the last 2 years. At the same time, manufacturers are continuously putting vendors under pressure to lower costs, according to 3M. The falling cost of silicon cells has also contributed greatly to the falling cost of solar modules, making lower cost, higher efficiency modules one of the leading market opportunities.

#### Huge expansion of the Chinese solar sector coming now

Clean Technica 1/10 Clean Technica is the world’s largest clean energy site. “China & Renewable Energy: The Outlook For Growth,” 2013, http://cleantechnica.com/2013/01/10/china-renewable-energy-the-outlook-for-growth/

Changes to its domestic strategic plan for the solar energy market serve as a case in point. Looking to soak up what’s grown to be a “huge glut of solar panels and cells” and stem the precipitous drop in prices on the world market, China’s leadership has increased its target for domestic solar power capacity 8 times over in the past couple years, from 5 gigawatts to 40 gigawatts by 2015, as CleanTechnica site director Zachary Shahan notes.¶ In its 12th and latest five-year plan (for 2011–2015), China’s leadership again singled out renewable energy as a key, strategic economic sector targeted **to receive even greater attention and support**. Aiming to provide “a snapshot of China’s renewable energy market,” consulting firm Solidiance January 8 released a white paper that “demonstrates the challenges and opportunities faced by this important industry.”¶ In its paper, “China’s Renewable Energy Sector: An Overview of Key Growth Sectors,” Solidiance analysts identify three main drivers propelling renewable energy’s growing importance, then move on to examine the government’s targets and strategies, which they note lie “at the root” of industry growth in China.¶ “The use of renewable energy is an increasingly hot topic and important issue in China. According to Solidiance’s analysis, there are 3 key drivers behind the continued interest in renewable energy in China:¶ 1. China’s increasing demand for electricity.¶ 2. China’s need to reduce its reliance on coal for energy production¶ 3. China’s need to reduce its greenhouse gas emissions.¶ “In the face of the problems of climate change, greenhouse gas emissions and oil prices rising, the public has come to realize the importance of developing renewable energy. More and more people opt for green travel or low-carbon lifestyles and the public media has been increasing its coverage and publicity of the development of low carbon technology and renewable energy,” Solidance quotes Liu Mingliang, an analyst for the China Wind Energy Association, as saying.

### Uniqueness---AT: Domestic Demand Decreasing

#### China’s solar demand is globally dominant---this answers every aff warrant

Solidiance 3/15 Solidiance is Asia’s premier marketing and innovation strategy consulting firm. “China is the fastest growing solar PV (Photo Voltaic) market in the world,” 2013, http://www.ecology.com/2013/03/15/solar-power-in-china/

In 2011, solar PV installations multiplied by nearly 3 times due to government’s increased commitment to industry development. This already overcrowded industry is pushing weaker firms out of the frame, whilst stronger firms are suffering from overcapacity issues, troubled technological development, international slowdown, and a general struggle for survival. Long term growth is expected to continue a rapid ascent, yet coordination and overcapacity issues need to be tackled to ensure growth can be maintained to a certain extent, in the short term.¶ Following the expansive growth of solar power in China leading up to 2011, the Chinese government is now targeting its total installed capacity to reach 21 GW by 2015 and 50 GW by 2020. This revised target demonstrates the Chinese government’s determination towards achieving their overall renewable energy targets and signals a firm belief this industry remains poised for growth, as well as being a suitable and sustainable platform for investment. Following the Fukushima disaster in Japan, China’s investment in nuclear energy has been reduced and offset by an increase in solar PV investment. The government is keen to develop the domestic solar power market swiftly through subsidies given and incentives to private manufacturers. Approximately 80% of China-manufactured PV modules and cells were exported by the end of 2011.¶ The domination by large SOEs in the former auction scheme which caused unintentional consequences of underbidding on large scale projects with the intent to capture market share is no longer allowed, thanks to the national Feed in Tariff (FiT), and it has stabilised the Chinese solar sector ever since – creating greater market competition and true dynamism within it. However, the FiT figures for 2012 only incentivised projects located far from demand centers where solar energy is more cheaply produced. Hence, BIPV (Building-Integrated Photovoltaics) systems which are traditionally focused near demand centers will struggle more in the near term compared to the rural-based LSPV (Large Scale PV) installations.¶ Current Overview¶ China is a multi-gigawatt solar PV market with newly installed solar PV capacity reaching over 2GW in 2011. The country is also the world’s fastest-growing solar PV market, with cumulative capacity to continuously ascend over the next few years. The majority of the new installations will be in grid-connected solar PV projects, such as BIPV and LSPV, to shift the market away from rural electrification.¶ Despite its impressive investment volumes and consistent growth, China’s solar PV market is currently dwarfed by Europe’s significant market control of over 75% of the globe’s total capacity in the global solar PV market. However, given the hard times that are now befalling Europe, China is positioning itself to fill a distinct niche in this particular sector as the EU shifts its attention to fixing their domestic financial crisis. The EU domestic financial crisis also means that its demand for PV is decreasing, thus paving the way for China to sustain growth in this industry.¶ Manufacturing market is now facing an increased competition and consolidation as the global value chain for solar PV is suffering from serious overcapacity. Components that are exceeded from the value chain are domestically reinstalled – hence increasing newly-installed capacity, yet setting up a confinement for foreign investment opportunities.¶ Industry Trends¶ Despite a high expectation towards China’s continued growth in installed solar PV capacity, the manufacturing industry has in fact been suffering from overcapacity and profit decrease. As for a result, a Solar Technology Developer of 3M stated that around half of the domestic module companies have disappeared in 2011, and what’s left and managed to survive in the battlefield were large companies with stronger technological capabilities.¶ Industry consolidation is rampant, but combined with the Chinese government’s push for increased solar installation, SOEs are vigorously entering the market which, historically, have been dominated by private firms. Moreover, as the price of silicon is decreasing at a consistent rate, (70% in Q3 2012 according to the Solar PV Committee of the Renewable Energy Society in China) smaller manufacturers initially focused purely on assembly functions are being squeezed out of the consolidation taking place in the market. This is believed to intensify the competitive atmosphere driving this market, however the longer term impacts remain uncertain.¶ Chinese companies are focusing on domestic orders to survive in response to the global financial crisis. According to a Solar Technology Developer at 3M, survival during this hard time seems to be the key goal and while the multi-national solar module manufacturers were focused on global markets which were more severely impacted by the global financial crisis, it was the local Chinese firms that made an aggressive push on developing domestic demand who are poised to come out of this phase of consolidation with a newly formed dominant position in the Chinese market.¶ Industry Opportunities¶ Potential for growth in the Chinese solar PV industry maintains a relatively bullish outlook for the strong who survive its ongoing consolidation. According to Solidiance’s analysis, the 3 main opportunities in this industry lie in the domestic development, new technology R & D (research and development), and cost reduction.¶ An opportunity to reinvest excessive capacity into the domestic market surely exists given the fact of the change in EU subsidies for solar PV, and this causes an abundant potential that China has for solar PV installations. For instance, Qinghai province alone possesses 1GW of installations, a figure exceeding the UK’s total solar installations and more than half of France’s in 2011. Qinghai is also where the world’s largest PV plant of 200 MW capacity is located, and it is equal to 6 times that of Brazil’s cumulative installed capacity in the same period. Moreover, 50% of the world’s supply of PV originates in China, indicating the technical capability is quickly achieving globally acceptable standards, making the local producers of solar PV well positioned to supply the anticipated domestic installation demand in the very short term.¶ Opportunities for technological innovation in the solar sector are continuously emerging. Lu Fang, the Secretary for the Solar PV Committee of the China Renewable Energy Society remarked that Chinese firms are now developing technologies and efficiencies of their solar cells on a ‘world class scale’. For example, Suntech Power, a Chinese firm and the world’s largest producer of solar panels, is researching technology to improve their mono and poly crystalline solar cells; Trina Solar, a Chinese manufacturer of photovoltaic modules, is also increasing their solar cells’ efficiency at impressively rapid rates. A Senior Electricity Analyst of the US Energy Information Administration even mentioned that an innovation of inexpensive and cost-competitive solar cells that are comparable with other electricity generation technologies would become a game changer in the global solar industry. It seems that Chinese companies are likely to be the first to access such technological opportunities.

#### Demand growing and resilient

Roca 3/8 Marc, Bloomberg. “China Drives Record Solar Growth Becoming Biggest Market,” 2013, http://www.bloomberg.com/news/2013-03-08/china-drives-record-solar-growth-becoming-biggest-market.html

The $77 billion solar-energy industry is forecast to expand the most since 2011, as China becomes the biggest market for the first time and drives annual global installations to a record.¶ New generation capacity will rise about 14 percent this year to 34.1 gigawatts, equal to about eight atomic reactors, according to the average estimate of seven analysts surveyed by Bloomberg. That would beat the 4.4 percent growth in 2012, when demand shrank in Italy and France after subsidies were cut.¶ China, after building scores of factories that helped cut panel prices 20 percent in the past year, is poised to become the biggest consumer of the devices after doubling its 2013 target for new projects in January. Tumbling prices are benefiting installers including Solarcity Corp. (SCTY) and SunPower Corp. (SPWR) of California while hurting manufacturers such as LDK Solar Co. of China and Norway’s Renewable Energy Corp. ASA (REC).¶ “Solar demand is proving very resilient and will keep growing this year even as European markets slump,” said Jenny Chase, head of solar analysis at Bloomberg New Energy Finance in Zurich. “A further increase in installations driven by record- low prices, however, won’t do much to help manufacturers’ margins.”

# 1NR

## NREL

#### Nuclear modernization isn’t k2 deterrence

Travis Sharp 10, Research Associate at the Center for a New American Security, “The Numbers Game”, Nukes of Hazard, Center for Arms Control & Nonproliferation, 2-24, http://www.nukesofhazardblog.com/story/2010/2/24/123221/390

This complaint is regularly expressed by Keith Payne, the paragon of conservative nuclear strategists. For instance, Payne wrote last year that “informed estimates about the functioning of deterrence must also include assessments of opponent decision-making processes, values, intentions, histories, levels of determination, goals, stakes and worldviews.” Since deterrence is not a quantifiable or scientific outcome, Payne concluded,¶ In the contemporary strategic environment, it is impossible to provide high-confidence, quantitatively precise and enduring answers to the question “how much is enough” for deterrence. The familiar game of linking some specific number of nuclear weapons with confidence in deterrence and the adequacy of U.S. strategic forces in general remains popular, but it now is unsupportable…even if done rigorously, identifying the requirements for deterrence is an incomplete basis for defining the necessary parameters for U.S. strategic forces in general.¶ Before considering whether this “numbers game” critique is justified, a comment is needed on Bolton’s and Payne’s methodology. Deterrence indubitably involves historical, cultural, psychological, and political calculations, as Payne suggests. NOH readers should recognize, however, that predicating deterrence on potential adversaries’ values, goals, stakes, and worldviews allows Bolton and Payne to configure U.S. nuclear forces according to how evil they perceive other countries to be. Do we really want to dismiss targeting-based deterrence analyses, such as Cimbala’s JFQ article and Lieber’s and Press’s Foreign Affairs appendix, as mere Cold War remnants and replace them with 1 inflammatory Ahmadinejad quote = 1 credible limited U.S. counterforce option? Payne is arguing, laudably, for recognizing deterrence’s complexity. Yet will an injection of red-blooded Manichaeism make U.S. nuclear policy more effective? I doubt it.¶ Payne is right that it is difficult to formulate “quantitatively precise” answers to deterrence questions, but that uncertainty doesn’t necessarily justify rounding up to the larger U.S. nuclear arsenal he would prefer. As Charles Glaser convincingly put it, “Deterrence is likely to be effective because, as was argued extensively during the Cold War, even relatively little credibility is sufficient when the costs of retaliation are so large.” In other words, a little nuke still goes a long way.

## China

### AT: Sino-Japan War

#### Sino-Japanese relations strong.

Xinhua News 10 (Zhang Ning, Xinhua “China-Japan relations show signs of improvement: FM,” 12-17-2010, http://english.cntv.cn/20101217/105123.shtml)

BEIJING, Dec. 16 (Xinhua) -- Sino-Japanese relations have shown signs of improvement and development, Chinese Foreign Ministry spokeswoman Jiang Yu said Thursday. Jiang made the comment at a regular news briefing, attributing the improved ties to "the many meetings and contacts" between Chinese and Japanese leaders at multilateral occasions and the important consensuses they had reached. After a ship collision soured the bilateral ties, Chinese Premier Wen Jiabao and Japanese Prime Minister Naoto Kan had briefly met in Hanoi ahead of the East Asian Summit and on the sidelines of the Asia-Europe Meeting in Brussels. "Attaching great importance to the bilateral relations, China is willing to work with Japan to promote the mutually strategic relationship to new highs," Jiang said. Both sides should act in accordance with the principles of the four political documents, and maintain the healthy and stable development of the relationship, she said. The four political documents, namely the China-Japan Joint Statement on Comprehensively Advancing Strategic and Reciprocal Relations, the Sino-Japanese Joint Statement, the China-Japan Treaty of Peace and Friendship and the Sino-Japanese Joint Declaration, serve as the bedrock for developing friendly and cooperative relations between the two countries. China is willing to strengthen cooperation with Japan in security dialogue and step up mutual trust, Jiang said. She confirmed that China and Japan would hold their 12th security dialogue in Beijing in the near future. Two Japanese Coast Guard patrol ships and a Chinese trawler collided on Sept. 7 in waters off the Diaoyu Islands in the East China Sea, and Japan illegally detained the trawler's captain. China halted bilateral exchanges at and above the provincial and ministerial levels and suspended talks on expanding aviation services between the two countries.

### AT: Taiwan

#### No US intervention

**Sollenberger 10**, student at the Johns Hopkins University, graduate Swarthmore and analyst, [Matthew, spring, “Challenging US Command of the Commons:Evolving Chinese defense technologies as a threat to American hegemony?”, <http://bcjournal.org/2010/challenging-us-command-of-the-commons/>]

The advancement of Chinese military capabilities in the areas of information warfare, anti-access measures, and strategic nuclear forces has substantially altered the strategic environment surrounding a US-China conflict, particularly in the Chinese littoral theaters. By hampering US intelligence gathering and communication assets and using anti-access measures, China could delay a US military response to a possible confrontation across the Taiwan Strait. Given the Chinese-Taiwanese balance of forces, which has tilted significantly against Taiwan in the last years, any delay in the US response to such a crisis could allow China to achieve its unification goals militarily and present the US with a fait accompli. Meanwhile, China’s enhanced capability to inflict substantial damage on US military and civilian assets at different levels of escalation has increased the costs of a potential military conflict between the US and China and thus, may reduce the readiness of US decision-makers to intervene in favor of Taiwan – particularly given China’s evolving ability to withstand US nuclear coercion and deny the US potential benefits from escalation. China has thus effectively challenged US command of the commons, contesting US military power in several key areas. By definition, this erodes one of the pillars of hegemony, namely unrivaled military prowess.

#### Even if China seeks reunification, they won’t use military force

Arthur S. Ding and Paul A. Huang 11, Research Fellow and Acting Director, Institute of International Relations (IIR) at National Chengchi University (NCCU), Taipei, Taiwan, AND Postdoctoral Research Fellow, IIR, NCCU, "Taiwan’s Paradoxical Perceptions of the Chinese Military," December, China Perspectives, Vol. 2011, No. 4, Academic Search Premier

The shift in China’s military approach towards Taiwan¶ As China’s policy towards Taiwan has changed from a tougher approach during the Jiang Zemin era to a more moderate approach under Hu Jintao today, the role of military force has been correspondingly downgraded in terms of prominence, although by no means abandoned. This change is largely tactical, since Beijing’s ultimate goal of eventual re-unification under the one China principle remains unchanged.¶ Reasons for the change in policy approach have never been formally disclosed by Beijing. Nevertheless, reasonable speculation is possible. On the one hand, military exercises in the 1995-96 Taiwan Strait crisis and the hawkish remarks made by Premier Zhu Rongji immediately before Taiwan’s 2000 Presidential election all backfired, and Taiwan people were alienated despite the fact that a trend for “Taiwan independence” did not come about. The backfiring of a forceful policy by Beijing could be seen as early as in the landslide victory of Lee Teng-hui in Taiwan’s 1996 Presidential election.¶ On the other hand, China’s diplomatic environment also suffered from its forceful approach to Taiwan in the late 1990s. The “China threat” theory emerged as a result of the hawkish behaviour exhibited by the PLA, and this served to isolate China by encouraging the US to develop closer security ties with Taiwan and to strengthen the US-Japan alliance. It was also detrimental to China’s goal of building better relations with its neighbouring countries, particularly those in Southeast Asia.¶ As such, the hardline policy had largely failed to achieve its aims, and had to be changed. This change coincided with the transition from Jiang Zemin to Hu Jintao. (18) As the leading figure of the fourth generation of CCP leaders, Hu took control over the party, state, and military step-by-step from Jiang between the years 2002 and 2005. During this period, Taiwan-China relations also embarked on a new trajectory with the revival of CCP-KMT cooperation marked by the visit of then-KMT chairman Lien Chan to China in 2005. (19) The completion of Beijing’s power transition and Lien’s visit China represented a milestone in terms of China’s military posture in its Taiwan policy, allowing China to move Taiwan policy from a hard to a soft approach, while still refusing to abandon the option of using military means against Taiwan in order to block Taiwan independence.¶ For instance, Hu’s keynote speech before the 17th Party Congress in 2007 greatly soft-pedalled the Taiwan issue, and did not mention the mantra of opposing Taiwan’s independence and two Chinas. (20) Again, in his Political Report at the 17th Party Congress, Hu offered Taiwan the opportunity to negotiate a peace accord. (21) The changes in China’s approach toward Taiwan under Hu laid the foundation for the later dramatic improved atmosphere in cross-Strait relations. There are several significant dimensions worth noting in the shift in China’s Taiwan policy since the Jiang-Hu transition of leadership.¶ Militarily, Beijing reduced its public emphasis on the potential use of force against Taiwan. Military tension flared up three times during the Jiang era in 1995, 1996, and 1999. By contrast, no such incidents have happened under Hu Jintao. Instead, Beijing has stressed non-military approaches to deal with Taiwan, and in a sense, Beijing has adjusted its means to influence Taiwan softly and comprehensively. For instance, the much-touted Dongshan Island military exercises previously held annually near the Taiwan Strait ceased in 2005, after having been scaled down in 2004. In response, Taipei announced the cancellation of the Han Kuang drill scheduled for 9 September 2004. (22) Further, PLA amphibious and airborne exercises perceived as simulated attacks on Taiwan have been held elsewhere, a step aimed at reducing the provocative nature of the drills.¶ This does not mean Beijing has given up the military approach, but rather that it prefers to stress softer approaches, even while still regarding the use of force as a last option. In 2007, Hu pointed out that the main mission of the PLA is to win a war with Taiwan, but also noted that attacking the island would cause several negative results, including damaging economic development along China’s southeast coast, impairing Beijing’s foreign relations, harming foreign investment in China, causing causalities, and pushing back the progress of China’s national modernisation. (23)¶ Although Hu proclaimed the tough-sounding “Anti-Secession Law” (ASL) (24) in 2005 to guard against the prospect of a declaration of Taiwan independence, and although the law was widely perceived as a step toward preparing the legal grounds for war against Taiwan, the law was actually meant more as a step to unshackle the hands of China’s Taiwan affairs experts to promote cross-Strait engagement free from hawkish internal opposition than as an attempt to intimidate Taiwan, even if Taiwan was further antagonised and alienated as a result. In other words, the ratification of the ASL served two goals: it sought to hold off any potential criticism of Hu’s new Taiwan policy on the one hand, while at the same time attempting to buy time for a new approach aimed at winning the hearts and minds of Taiwanese people for the ultimate goal of political re-unification.¶ Hu’s new Taiwan policy could also be demonstrated in his handling of Beijing-Washington-Taipei relations. The new approach has been to restrain Taiwan’s independence via Washington diplomatically, rather than to constrain Taipei directly and militarily. This was in sharp contrast to the Jiang Zemin era, during which Beijing’s sensitivity to Taiwan separatism led it to launch missile tests in the Taiwan Strait before the Taiwan presidential election in 1996. By contrast, Hu Jintao looked to Washington to rein in behaviour by Taiwan that it considered destabilising.¶ For instance, during the 2004 presidential election campaign, Beijing unexpectedly did not resort to military intimidation or even verbal attacks. Rather, as Chen stressed Taiwan independence and referendum issues on several occasions, Beijing encouraged Washington to admonish him while remaining silent itself. This change reflected the increased importance China has assigned to the US in its approach to constraining Taiwan. Beijing has changed its policy vis-à-vis Taipei from acting directly across the Strait to acting on Taipei indirectly through pressure exerted by Washington.¶ Hu Jintao’s changed approach toward Taiwan could be observed in other areas as well. In the white paper China’s National Defense in 2008 released on 20 January 2009, (25) more than six months after Taiwan President Ma Ying-jeou (馬英九) took office, Beijing stressed that the two sides of the Taiwan Strait have made progress in consultations under the common political framework of the “1992 Consensus.” (26) China took a further step in its 2010 defence white paper, which proposed that Taipei and Beijing initiate talks about a “military security trust mechanism.” (27)¶ Briefly, under Hu Jintao, China’s approach to Taiwan has become decidedly more patient and less aggressive in response to Taiwan’s de-emphasising of the independence issue. Beijing’s attitude nowadays is softer, more proactive, and more flexible in engaging Taiwan economically, socially, and culturally. This has greatly reduced Taiwanese analysts’ perceptions of threat from mainland China.

### Alt Cause

#### No Coop---IPR concerns

Conrad 11 – Research associates with the Global Public Policy Institute [Björn Conrad (PhD candidate @ University of Trier. His research focuses on China’s domestic climate policy. MA in Chinese Studies, Political Science and Economics from the University of Trier and a Master in Public Policy from Harvard’s Kennedy School of Government.) & Mirjam Meissner (MA in Chinese Studies, Political Science and Economics from the Free University), “Catching a Second Wind Changing the Logic of International Cooperation in China’s Wind Energy Sector,” Global Public Policy Institute, GPPi Policy Paper No. 12, February 2011

Intellectual property rights

The vast potential for profit-making ensures the continuous attractiveness of China’s wind market for foreign companies despite setbacks and disappointments. As Lie Huihan of Suzlon Energy (China) put it: “Whatever the circumstances are, not being here is just not an option.” 30 However, the necessity to protect their innovative edge puts limits on international companies’ willingness to engage in comprehensive partnerships with Chinese counterparts. Especially in a relatively young business sector like wind energy, where international competition is shaped by rapid technology improvements and large competitive advantages through innovation, cutting-edge technology represents the basis for success. Therefore, concerns about IPR infringements (see box 1) have significant influence on international companies’ business decisions when it comes to entry into the Chinese wind market. Foreign firms cautiously avoid introducing sensible and up-to-date technology to China and have been reluctant to locate R&D activities in China. More recently, concerns about safeguarding technological advantages have been intensified by the prospects of Chinese manufacturers starting to export to markets outside China, making them global competitors. In light of these concerns, joint R&D projects between foreign and Chinese wind firms are exceedingly rare thus far. Given the Chinese side’s strong focus on technology advancement as the primary benefit of international cooperation, this dynamic significantly limits the scope of workable international collaboration in China’s wind sector.

## Commercialization

### Decoupling

### 1NC US Not Key

#### US not key—global economies decoupling

Caryl, Sr. Fellow @ MIT, 10 [Christian Caryl is a Editor at Foreign Policy and Newsweek and a Senior Fellow of the CSIS at the Massachusetts Institute of Technology, “Crisis? What Crisis?” 4/5/10 http://www.foreignpolicy.com/articles/2010/04/05/crisis\_what\_crisis?print=yes&hidecomments=yes&page=full]

We went through a terrifying moment back in the fall of 2008. The financial system in the United States was imploding. It was impossible to predict how the effects would ripple through the rest of the world, but one outcome seemed inevitable: Developing economies were going to take a terrible hit. There was just no way they could escape the maelstrom without seeing millions of their citizens impoverished. Many emerging-market countries did experience sharp drops in GDP. Their capital markets tanked. Dominique Strauss-Kahn, managing director of the International Monetary Fund (IMF), sounded downright apocalyptic: "All this will affect dramatically unemployment, and beyond unemployment for many countries it will be at the roots of social unrest, some threat to democracy, and maybe for some cases it can also end in war." The Economist recently noted, "The Institute of International Finance (IIF), a think-tank in Washington, DC, forecast that net private capital flows into poor countries in 2009 would be 72% lower than at their peak in 2007, an unprecedented shrinkage." Virtually everyone expected to see the countries that had benefited so dramatically from growth in the years leading up to the crisis to suffer disproportionately in its wake. An entirely rational assumption -- except it hasn't turned out that way at all. To be sure, there were far too many poor people in the world before the crisis, and that still remains the case. Some 3 billion people still live on less than $2.50 a day. But the global economic crisis hasn't added appreciably to their ranks. Just take China, India, and Indonesia, Asia's three biggest emerging markets. Although growth in all three slowed, it never went into reverse. China's robust growth through the crisis has been much publicized -- but Indonesia's, much less conspicuously. Those countries, as well as Brazil and Russia, have rebounded dramatically. The Institute of International Finance -- the same people who gave that dramatically skepticism-inducing estimate earlier -- now says that net private capital flows to developing countries could reach $672 billion this year (double the 2009 amount). That's less than the high point of 2007, to be sure. But it still seems remarkable in light of the dire predictions. In short, the countries that have worked the hardest to join the global marketplace are showing remarkable resilience. It wasn't always this way. Recall what happened back in 1997 and 1998, when the Thai government's devaluation of its currency triggered the Asian financial crisis. Rioting across Indonesia brought down the Suharto government. The administration of Filipino President Joseph Estrada collapsed. The turbulence echoed throughout the region and into the wider world, culminating in the Russian government default and August 1998 ruble devaluation. Brazil and Argentina trembled. The IMF was everywhere, dispensing advice and dictating conditions. It was the emerging markets that bore the brunt of that crisis. So what's different this time around? The answers differ from place to place, but there are some common denominators. Many of the BRICs (Brazil, Russia, India, China) learned vital lessons from the trauma of the late 1990s, hence the IMF's relatively low-key profile this time around. (The fund has been most active in Africa, where they still need the help -- unless you count Greece, of course.) Many emerging economies entered the 2008-2009 crisis with healthy balance sheets. In most cases governments reacted quickly and flexibly, rolling out stimulus programs or even expanding poverty-reduction programs. Increasingly, the same countries that have embraced globalization and markets are starting to build social safety nets. And there's another factor: Trade is becoming more evenly distributed throughout the world. China is now a bigger market for Asian exporters than the United States. Some economists are talking about "emerging market decoupling." Jonathan Anderson, an emerging-markets economist at the Swiss bank UBS, showed in one recent report how car sales in emerging markets have actually been rising during this latest bout of turmoil -- powerful evidence that emerging economies no longer have to sneeze when America catches a cold. Aphitchaya Nguanbanchong, a consultant for the British-based aid organization Oxfam, has studied the crisis's effects on Southeast Asian economies. "The research so far shows that the result of the crisis isn't as bad as we were expecting," she says. Indonesia is a case in point: "People in this region and at the policy level learned a lot from the past crisis." Healthy domestic demand cushioned the shock when the crisis hit export-oriented industries; the government weighed in immediately with hefty stimulus measures. Nguanbanchong says that she has been surprised by the extent to which families throughout the region have kept spending money on education even as incomes have declined for some. And that, she says, reinforces a major lesson that emerging-market governments can take away from the crisis: "Governments should focus more on social policy, on health, education, and services. They shouldn't be intervening so much directly in the economy itself." This ought to be a big story. But you won't have much luck finding it in the newspapers -- perhaps because it runs so contrary to our habitual thinking about the world economy. The U.N. Development Programme and the Asian Development Bank recently published a report that attempts to assess what effect the crisis will have on the world's progress toward the U.N. Millennium Development Goals, benchmarks that are supposed to be achieved by 2015. At first glance the report's predictions are daunting: It states that 21 million people in the developing world are "at risk" of slipping into extreme poverty and warns that the goals are unlikely to be met. Many experts wonder, of course, whether the V-shaped crisis we've witnessed so far is going to turn into a W, with another sharp downturn still to come. Some argue that the Great Recession's real damage has yet to be felt. Yet the report also contains some interesting indications that this might not be the case. "The global economic crisis has been widely predicted to affect international migration and remittances adversely," it notes. "But as the crisis unfolds, it is becoming clear that the patterns of migration and remittances may be more complex than was previously imagined." In other words, these interconnections are proving to be much more resilient than anyone might have predicted earlier. As the report notes, receipts of remittances have so far actually increased in Bangladesh, India, Nepal, Pakistan, Philippines, and Sri Lanka. Perhaps migrant workers -- those global experts in entrepreneurship and risk-taking -- know something that a lot of the rest of us don't. So why should we care? Anirudh Krishna, a Duke University political scientist who studies poverty reduction, says that there's a moral to the story: "Certainly cutting countries and people off from markets is no longer a sensible thing to do. Expanding those connections, bringing in a larger part of a talent pool into the high-growth sector -- that is what would make most countries grow faster and more individuals climb out of poverty." Echoing Nguanbanchong, he argues that governments are well-advised to concentrate on providing their citizens with education and health care -- the great enablers in the fight for social betterment. Microfinance and income subsidy programs can fill important gaps -- as long as they aim to empower future entrepreneurs, not create cultures of entitlement. This is not to say the outlook is bright on every front, of course. As the Economist noted, the number of people facing hunger recently topped 1 billion, the highest since 1970. The reason for that has more to do with the 2007-2008 spike in food prices than with the financial crisis. (Remember how the price of rice shot up?) We are still a long way from conquering poverty. There is still a huge -- and in some cases growing -- gap between the world's rich and poor. Yet how remarkable it would be if we could one day look back on the 2008-2009 crisis as the beginning of a more equitable global economy**.**

### Warming

## Economy---General

### Economy---No War

#### No chance of war from economic decline---best and most recent data

Daniel W. Drezner 12, Professor, The Fletcher School of Law and Diplomacy, Tufts University, October 2012, “The Irony of Global Economic Governance: The System Worked,” <http://www.globaleconomicgovernance.org/wp-content/uploads/IR-Colloquium-MT12-Week-5_The-Irony-of-Global-Economic-Governance.pdf>

The final outcome addresses a dog that hasn’t barked: the effect of the Great Recession on cross-border conflict and violence. During the initial stages of the crisis, multiple analysts asserted that the financial crisis would lead states to increase their use of force as a tool for staying in power.37 Whether through greater internal repression, diversionary wars, arms races, or a ratcheting up of great power conflict, there were genuine concerns that the global economic downturn would lead to an increase in conflict. Violence in the Middle East, border disputes in the South China Sea, and even the disruptions of the Occupy movement fuel impressions of surge in global public disorder.

The aggregate data suggests otherwise, however. The Institute for Economics and Peace has constructed a “Global Peace Index” annually since 2007. A key conclusion they draw from the 2012 report is that “The average level of peacefulness in 2012 is approximately the same as it was in 2007.”38 Interstate violence in particular has declined since the start of the financial crisis – as have military expenditures in most sampled countries. Other studies confirm that the Great Recession has not triggered any increase in violent conflict; the secular decline in violence that started with the end of the Cold War has not been reversed.39 Rogers Brubaker concludes, “the crisis has not to date generated the surge in protectionist nationalism or ethnic exclusion that might have been expected.”40

None of these data suggest that the global economy is operating swimmingly. Growth remains unbalanced and fragile, and has clearly slowed in 2012. Transnational capital flows remain depressed compared to pre-crisis levels, primarily due to a drying up of cross-border interbank lending in Europe. Currency volatility remains an ongoing concern. Compared to the aftermath of other postwar recessions, growth in output, investment, and employment in the developed world have all lagged behind. But the Great Recession is not like other postwar recessions in either scope or kind; expecting a standard “V”-shaped recovery was unreasonable. One financial analyst characterized the post-2008 global economy as in a state of “contained depression.”41 The key word is “contained,” however. Given the severity, reach and depth of the 2008 financial crisis, the proper comparison is with Great Depression. And by that standard, the outcome variables look impressive. As Carmen Reinhart and Kenneth Rogoff concluded in This Time is Different: “that its macroeconomic outcome has been only the most severe global recession since World War II – and not even worse – must be regarded as fortunate.”42

### Economy---Resilience

#### Global economic governance institutions guarantee resiliency

Daniel W. Drezner 12, Professor, The Fletcher School of Law and Diplomacy, Tufts University, October 2012, “The Irony of Global Economic Governance: The System Worked,” <http://www.globaleconomicgovernance.org/wp-content/uploads/IR-Colloquium-MT12-Week-5_The-Irony-of-Global-Economic-Governance.pdf>

Prior to 2008, numerous foreign policy analysts had predicted a looming crisis in global economic governance. Analysts only reinforced this perception since the financial crisis, declaring that we live in a “G-Zero” world. This paper takes a closer look at the global response to the financial crisis. It reveals a more optimistic picture. Despite initial shocks that were actually more severe than the 1929 financial crisis, global economic governance structures responded quickly and robustly. Whether one measures results by economic outcomes, policy outputs, or institutional flexibility, global economic governance has displayed surprising resiliency since 2008. Multilateral economic institutions performed well in crisis situations to reinforce open economic policies, especially in contrast to the 1930s. While there are areas where governance has either faltered or failed, on the whole, the system has worked. Misperceptions about global economic governance persist because the Great Recession has disproportionately affected the core economies – and because the efficiency of past periods of global economic governance has been badly overestimated. Why the system has worked better than expected remains an open question. The rest of this paper explores the possible role that the distribution of power, the robustness of international regimes, and the resilience of economic ideas might have played.

#### The fact that it worked well in response to 2008 means it’ll work even better next time

Daniel W. Drezner 12, Professor, The Fletcher School of Law and Diplomacy, Tufts University, October 2012, “The Irony of Global Economic Governance: The System Worked,” <http://www.globaleconomicgovernance.org/wp-content/uploads/IR-Colloquium-MT12-Week-5_The-Irony-of-Global-Economic-Governance.pdf>

It is equally possible, however, that a renewed crisis would trigger a renewed surge in policy coordination. As John Ikenberry has observed, “the complex interdependence that is unleashed in an open and loosely rule-based order generates some expanding realms of exchange and investment that result in a growing array of firms, interest groups and other sorts of political stakeholders who seek to preserve the stability and openness of the system.”103 The post-2008 economic order has remained open, entrenching these interests even more across the globe. Despite uncertain times, the open economic system that has been in operation since 1945 does not appear to be closing anytime soon.

### Impact Defense---No Extinction---2NC

#### No data supports mass extinction theories---their models are flawed

David Stockwell 11, Researcher at the San Diego Supercomputer Center, Ph.D. in Ecosystem Dynamics from the Australian National University, developed the Genetic Algorithm for Rule-set Production system making contributions modeling of invasive species, epidemiology of human diseases, the discovery of new species, and effects on species of climate change, April 21, 2011, “Errors of Global Warming Effects Modeling,” online: <http://landshape.org/enm/errors-of-global-warming-effects-modeling/>

Predictions of massive species extinctions due to AGW came into prominence with a January 2004 paper in Nature called Extinction Risk from Climate Change by Chris Thomas et al.. They made the following predictions:

“we predict, on the basis of mid-range climate-warming scenarios for 2050, that 15â€“37% of species in our sample of regions and taxa will be â€˜committed to extinctionâ€™.

Subsequently, three communications appeared in Nature in July 2004. Two raised technical problems, including one by the eminent ecologist Joan Roughgarden. Opinions raged from “Dangers of Crying Wolf over Risk of Extinctions” concerned with damage to conservationism by alarmism, through poorly written press releases by the scientists themselves, and Extinction risk [press] coverage is worth the inaccuracies stating “we believe the benefits of the wide release greatly outweighed the negative effects of errors in reporting”.

Among those believing gross scientific inaccuracies are not justified, and such attitudes diminish the standing of scientists, I was invited to a meeting of a multidisciplinary group of 19 scientists, including Dan Bodkin from UC Santa Barbara, mathematician Matt Sobel, Craig Loehle and others at the Copenhagen base of BjÃ¸rn Lomborg, author of The Skeptical Environmentalist. This resulted in Forecasting the Effects of Global Warming on Biodiversity published in 2007 BioScience. We were particularly concerned by the cavalier attitude to model validations in the Thomas paper, and the field in general:

Of the modeling papers we have reviewed, only a few were validated. Commonly, these papers simply correlate present distribution of species with climate variables, then replot the climate for the future from a climate model and, finally, use one-to-one mapping to replot the future distribution of the species, without any validation using independent data. Although some are clear about some of their assumptions (mainly equilibrium assumptions), readers who are not experts in modeling can easily misinterpret the results as valid and validated. For example, Hitz and Smith (2004) discuss many possible effects of global warming on the basis of a review of modeling papers, and in this kind of analysis the unvalidated assumptions of models would most likely be ignored.

The paper observed that few mass extinctions have been seen over recent rapid climate changes, suggesting something must be wrong with the models to get such high rates of extinctions. They speculated that species may survive in refugia, suitable habitats below the spatial scale of the models.

Another example of an unvalidated assumptions that could bias results in the direction of extinctions, was described in chapter 7 of my book Niche Modeling.

When climate change shifts a species’ niche over a landscape (dashed to solid circle) the response of that species can be described in three ways: dispersing to the new range (migration), local extirpation (intersection), or expansion (union). Given the probability of extinction is correlated with range size, there will either be no change, an increase (intersection), or decrease (union) in extinctions depending on the dispersal type. Thomas et al. failed to consider range expansion (union), a behavior that predominates in many groups. Consequently, the methodology was inherently biased towards extinctions.

One of the many errors in this work was a failure to evaluate the impact of such assumptions.

The prevailing view now, according to Stephen Williams, coauthor of the Thomas paper and Director for the Center for Tropical Biodiversity and Climate Change, and author of such classics as “Climate change in Australian tropical rainforests: an impending environmental catastrophe”, may be here.

Many unknowns remain in projecting extinctions, and the values provided in Thomas et al. (2004) should not be taken as precise predictions. … Despite these uncertainties, Thomas et al. (2004) believe that the consistent overall conclusions across analyses establish that anthropogenic climate warming at least ranks alongside other recognized threats to global biodiversity.

So how precise are the figures? Williams suggests we should just trust the beliefs of Thomas et al. — an approach referred to disparagingly in the forecasting literature as a judgmental forecast rather than a scientific forecast (Green & Armstrong 2007). These simple models gloss over numerous problems in validating extinction models, including the propensity of so-called extinct species quite often reappear. Usually they are small, hard to find and no-one is really looking for them.