### Plan

#### The United States federal government should lower antidumping tariffs on crystalline silicon photovoltaic cells from the People’s Republic of China.

### China

#### Advantage 1 is China

#### US solar tariffs threaten to start a clean energy trade war

Tucker 8/27/12, William, work has appeared in Harper’s, the Atlantic Monthly, the American Spectator, the Weekly Standard, National Review, Reason, the New Republic, Reader’s Digest, the Wall Street Journal, and many other publications, “Let’s Just Admit Solar Needs Help and Avoid Trade War”, <http://www.nucleartownhall.com/blog/william-tucker-let%E2%80%99s-just-admit-solar-needs-help-and-avoid-trade-war/>

Although the newspapers haven’t been paying much attention lately, the United States and China seem to be on the verge of a trade war that could have huge implications for the world economy.¶ Let’s not scoff at trade wars. Although they’re easy to initiate, **they’re awfully difficult to halt once they get started**. People still remember the Stock Market Crash of 1929 as the start of the Great Depression but a couple of years ago, the late Bob Bartley, the great editorial page editor of The Wall Street Journal, ran a series of columns showing clearly that it was the Smoot-Hawley Tariff Bill of 1930 that turned what might have been just a cyclical downturn into a decade-long horror. How did Smoot-Hawley get started? A couple of Western Congressman wanted to protect the agricultural crops in their home states. President Herbert Hoover called a special session of Congress and before anybody knew it, every Senator and Representative from every state in the union had added something to the Christmas tree. The stock market nosedived, knowing where all this was leading, and before it was over the Great Depression had begun.¶ Every economist in the world knows right now that **we are teetering on the edge of such another conflagration**. The world economy is in a slump and threatening to get worse. Japan has been in the doldrums for twenty years. Europe is suffering a meltdown. The U.S. is in a four-year funk. China and India have been the locomotive of the world economy but now China is showing serious signs of slowing down. Will everybody stay calm and try to ride out the storm? Or will the recriminations begin and countries start rocking the boat so that **the whole world economy may go under**?¶ Well, the rocking has already begun and the boat is being tipped by – wouldn’t you know it – good old solar energy.¶ Ah yes, solar energy, the wave of the future that is sure to arrive soon except that it’s still not economical and so our government has to subsidize it right now because it’s eventually going to be the wave of the future and then we’ll become the solar capital of the world.¶ What government hasn’t fallen for that line? Europe has been practicing “feed-in tariffs” – which is just a fancy name for price supports – for more than a decade. Spain almost bankrupted itself trying to nurture an infant solar industry. Germany thinks it’s going to get rid of nuclear power and run itself on that country’s notoriously weak sunshine. Portugal, Italy, Greece – they all think exporting solar panels will be the cure for their ailing economies.¶ Here in the United States, of course, we have the Production Tax Credit, Renewable Portfolio Mandates, government loan guarantees (a la Solyndra) and all sorts of other gimmicks for trying to promote solar. President Obama recently decided to utilize about 100 square miles of the Mojave Desert for a great solar experiment because “We Can’t Wait” for the market to tell us that solar is practical. And in China? Well, everything in China is pretty much run by the government, so you can imagine how much the industry is being supported there.¶ And so the first shots have been fired. Six months ago President Obama yielded to the solar industry and placed a 31 percent tariff on solar panels from China. The charge was that China was “overproducing” and “dumping” panels on the US. China immediately retaliated by pointing out the many solar subsidies in this country and filed a complaint with the World Trade Organization saying we are dumping polysilicon on them. China too has its domestic industries that want protection.¶ Now Europe has joined the fray. Germany thought by guaranteeing a high price to vendors of solar electricity that it would be fostering a domestic industry. Instead, it found it was subsidizing China. So they have cried “foul” and enlisted 24 other European manufacturers to file their own complaint with the European Trade Commission. Europe now constitutes 60 percent of China’s market and the consequences could be devastating**. To top it off, India is now getting into the fray.** ¶ So there we have it. The pieces are all in place for an international brawl that could bring down the world economy. Once the barricades have been erected for solar manufacturers, how long will it be before **other industries ask for protection** as well? Congressmen Smoot and Hawley must be celebrating in their graves. What a wonderful legacy this will make for good old clean-and-green solar power.

#### Now is key – solar spills over and escalates within months

Bloomberg 9/5 [Bloomberg News, “China Speeding U.S. Solar-Dumping Case as Election Nears: Energy,” http://www.bloomberg.com/news/2012-09-05/china-speeding-u-s-solar-dumping-case-as-election-nears-energy.html]

China is accelerating a dispute with the U.S. over solar-energy taxes, moving forward its next salvo to hit as President Barack Obama faces re-election.¶ China’s Ministry of Commerce will make preliminary findings as early as November, eight months before the deadline, on a complaint that U.S. manufacturers are dumping polysilicon, according to officials at Daqo New Energy Corp. (DQ) and Jiangsu Zhongneng Polysilicon Technology Development Co., two of four companies that brought the case. Ministry officials are visiting the companies to gather proof of damage.¶ “We’ll show our financial condition, workforce details and the impact on income,” Kevin He, investor relations manager for Daqo, said in an interview. “We hope the government sets appropriate punishment tariffs to curb dumping and protect us from damages” from U.S. and South Korean imports.¶ China’s potential penalties on imported polysilicon, the most costly material in making solar cells, comes after the Obama administration announced plans to impose punitive duties of as much as 250 percent on U.S. imports of Chinese solar cells. The trade dispute is heating up as Obama seeks re- election in November. The Chinese government hasn’t said its move is a retaliatory measure.¶ The struggle between the world’s biggest energy-consuming nations centers on state support for the solar industry, a business both Obama and Chinese Premier Wen Jiabao have said is a priority. Global investment in solar projects rose 61 percent to $137.8 billion last year.

#### Strategic value of renewables makes this conflict uniquely likely to escalate

Beijing Review 9/3/12 [Citing Li Chunding, Ph.D. in Economics, research assistant at the Institute of World Economics and Politics at the Chinese Academy of Social Sciences, “Frictions over renewable energy,” http://www.china.org.cn/business/2012-09/03/content\_26410601.htm]

A month after the United States launched the anti-dumping and countervailing investigations against the Chinese PV industry, on November 25, 2011, in accordance with the petition proposed by the China Chamber of Commerce for Import and Export of Machinery and Electronic Products and the New Energy Chamber of Commerce of the All-China Federation of Industry and Commerce, MOFCOM, in line with the provisions specified in the Foreign Trade Law of the People's Republic of China and Investigation Rules of Foreign Trade Barriers, initiated trade barrier investigations of six U.S. support policies and subsidy measures on the renewable energy industry.¶ MOFCOM invited the U.S. side to comment on the questions of the investigation within 30 days and received the U.S. side's Opinions on the Trade Barrier Investigation Initiated by MOFCOM on November 25, 2011. The U.S. Government asked for a petition letter and relevant documents, while other relevant parties and the public in the United States did not make any comment on MOFCOM's decision. MOFCOM took the U.S. Government's opinions into consideration during the investigation process and handed a petition letter and relevant documents to the U.S. Government.¶ The final investigation conducted by MOFCOM determined that six investigated projects encouraging renewable energy in Washington, Massachusetts, Ohio, New Jersey and California, have constituted prohibited subsidies stated in Article 3 of the Subsidy and Countervailing Measures Agreement formulated by the WTO, and violated relevant provisions in Article 3 of the WTO Subsidy and Countervailing Measures Agreement and Article 3 of the 1994 General Agreement on Tariffs and Trade.¶ Take encouraging projects of renewable energy in Washington as an example. The Washington State Government has provided a subsidy of $0.15 per kwh for individuals, companies and local governments using solar power, wind power and anaerobic methane to generate power since July 2005.¶ MOFCOM found through investigations that the six investigated projects have formed unreasonable restrictions on the Chinese renewable energy industry and weakened Chinese renewable energy products' competitiveness in the U.S. market, reducing the export of Chinese renewable energy products to the United States and creating an effective trade barrier for Chinese renewable energy products' entry into the U.S. market.¶ MOFCOM decided to launch both anti-dumping and countervailing investigations on imports of solar-grade polysilicon from the United States and an anti-dumping investigation on imports of the same commodity from South Korea on July 23 in response to the petitions of many Chinese solar-grade polysilicon-producing companies. It will also make investigations on the injury to the Chinese solar-grade polysilicon industry and then make adjudication under the state law.¶ Polysilicon is a raw material used in manufacturing solar products. According to MOFCOM statistics, solar-grade polysilicon products imported by China surged 36 percent year on year to 64,600 tons in 2011, totaling $2.6 billion. Some 60 percent of the imported polysilicon products come from the United States and South Korea. In the first half of this year, the amount of polysilicon products imported from the two countries kept increasing at a high speed. In May, 44 percent of the imported polysilicon products came from the United States and 24 percent from South Korea. China is the main market of such international polysilicon product manufacturing giants as South Korea's OCI Co. and the United States' Hemlock. Polysilicon products imported from the United States and South Korea are sold at a price lower than Chinese products' costs. Hit by the dumping of U.S. and ROK polisilicon products, 80 percent of Chinese polysilicon product manufacturing companies have suspended production since August 2011.¶ According to MOFCOM, preliminary investigation results will be released by July 2013.¶ Mounting tensions¶ Li Chunding, research assistant at the Institute of World Economics and Politics at the Chinese Academy of Social Sciences, attributed frequent and intensifying trade frictions between China and the United States to the following reasons:¶ On the one hand, Chinese investment in the renewable energy sector and the production capacity of the industry are both increasing rapidly. The sector has upgraded its technology, which helps increase both its competitiveness in the international market and its exports significantly. The United States is an important market of Chinese renewable energy products, and it is natural that it takes trade protectionist measures in response to the expansion of Chinese exports.¶ On the other hand, the burst of financial bubbles during the **economic crisis has prompted the U.S. Government to attach greater importance to the real economy** and lead the economy back to the track of the real economy. Against such a background, any threat posed by other countries will elicit backlash from the U.S. Government and relevant companies.¶ More importantly, the renewable energy industry is a very important strategic sector for every country and is recognized as one with huge potential, so it is natural that the United States wants to lead the industry and even have a monopoly over it. For such a strategic industry, Chinese exports are very likely to face trade barriers erected by the United States.¶ "The renewable energy industry is also the driving engine and the key for China's economic restructuring and industrial upgrading. Therefore, in response to trade frictions started by the United States, we should take all kinds of measures to ease and settle disputes and reduce our losses."¶ China-U.S. trade frictions previously occurred in middle- and low-end products of manufacturing industries, a direct cause of China's trade surplus. However, China reaps few benefits from such trade surplus, and this kind of products may gradually disappear as a result of upgraded industries. Li said that trade frictions in the new energy industry carry more strategic value than that arising from those in middle- and low-end products.¶ Because the new energy sector is of strategic importance to its development, the United States is not likely to make a compromise on trade frictions in this sector.¶

#### Trade war causes US-China military conflict

Landy 7 [Ben Landy, Director of Research and Strategy at the Atlantic Media Company, publisher of the Atlantic Monthly, National Journal, and Government Executive magazines. Landy served in various research and project management positions at the Brookings Institution and Center for Strategic and International Studies, two leading public policy think tanks in Washington, D.C. Ben holds a bachelor of arts degree from Yale University. April 3, 2007, <http://chinaredux.com/2007/04/03/protectionism-and-war/#comments>,)

The greatest threat for the 21st century is that these economic flare-ups between the US and China will not be contained, but might spill over into the realm of military aggression between these two world powers. Economic conflict breeds military conflict. The stakes of trade override the ideological power of the Taiwan issue. China’s ability to continue growing at a rapid rate takes precedence, since there can be no sovereignty for China without economic growth. The United States’ role as the world’s superpower is dependent on its ability to lead economically. As many of you will know from reading this blog, I do not believe that war between the US and China is imminent, or a foregone conclusion in the future. I certainly do not hope for war. But I have little doubt that protectionist policies on both sides greatly increase the likelihood of conflict–far more than increases in military budgets and anti-satellite tests.

#### That causes nuclear world war 3

Hunkovic 9 **–** American Military University [Lee J, 2009, “The Chinese-Taiwanese Conflict: Possible Futures of a Confrontation between China, Taiwan and the United States of America”, http://www.lamp-method.org/eCommons/Hunkovic.pdf]

A war between China, Taiwan and the United States has the potential to escalate into a nuclear conflict and a third world war, therefore, many countries other than the primary actors could be affected by such a conflict, including Japan, both Koreas, Russia, Australia, India and Great Britain, if they were drawn into the war, as well as all other countries in the world that participate in the global economy, in which the United States and China are the two most dominant members. If China were able to successfully annex Taiwan, the possibility exists that they could then plan to attack Japan and begin a policy of aggressive expansionism in East and Southeast Asia, as well as the Pacific and even into India, which could in turn create an international standoff and deployment of military forces to contain the threat. In any case, if China and the United States engage in a full-scale conflict, there are few countries in the world that will not be economically and/or militarily affected by it. However, China, Taiwan and United States are the primary actors in this scenario, whose actions will determine its eventual outcome, therefore, other countries will not be considered in this study.

#### An escalated U.S. China trade war results in economic conflicts and devastating protectionism

Wang and Li 11 (Jianhua and Yunlu—Xinhua news agency, citing Ni Feng, Vice President of the Institute of American Studies underthe Chinese Academy of Social Sciences, Zhao Jinping, vice director of the Foreign Economic Department of the Development Research Center (DRC) of the State Council “China-US trade war no good for anyone”, October 13, 2011. http://english.peopledaily.com.cn/90780/7616581.html

A trade war between the United States and China, each of which is the other's second largest trade partner, will lead to serious consequences, not only hurting both sides but also causing severe turbulence to the world economic system. ¶ Analysts predicted that if the trade war erupts, many exporters of both countries will operate far under their designed production capacity and then go bankrupt. Hundreds of foreign trade-related industries may become sluggish, including the land and water freight industry and the settlement industry, and bad debts may increase substantially. The number of unemployed Americans may rise by tens of thousands even millions in a short time, and the country may face a record-breaking double figure unemployment rate. At the same time, tens of thousands of migrant workers in China may be forced to return home, and household consumption may drop sharply. ¶ A trade war between the world's top two economies will exert a far-reaching impact on the global economy. The exports of Asia and Australia may drop significantly, and the mining industry may shrink rapidly in South America and Africa. The high-end manufacturing sectors of Japan, the European Union, and North America may suffer huge losses, and many Western multinational corporations may have to cut their operations abroad. Global financial markets may be plunged into prolonged turmoil, and the already severe European and U.S. debt crises may escalate rapidly. Furthermore, **all countries may turn to protectionism** to protect their domestic industries. ¶ Zhao said that given the enormous size of the Chinese and U.S. economies and their tremendous trade volume, a China-U.S. trade war would cause a domino effect, and lead to a sharp drop in global trade. **It could cause even more damage to the world economy than the global financial crisis.** ¶ The United States alone contributes about 23 percent to global economic growth, and its trade volume accounts for about 10 percent of the world's total. China's economy and trade volume both account for more than 9 percent of the world's total. ¶ The two economies are each other's second largest trading partner. The U.S. exports to China amounted to 100 billion U.S. dollars last year, up 30 percent from the previous year, making China its second largest export destination. The Chinese exports to the United States reached 280 billion U.S. dollars last year, making the United States its second largest export destination. It should be pointed out that processing trade accounts for more than 50 percent of China's total exports, and almost 60 percent of China's exports are produced by foreign-invested enterprises. ¶ "A trade war between the United States and China would be something that shakes the whole world and plunges it into disorder. If it occurs, **there will be no safe bystanders in the world at all,"** said Ni Feng, Vice President of the Institute of American Studies under the Chinese Academy of Social Sciences.¶ Ni believes that, since the economies of the world are so closely bought, the influence brought by the trade war between the Untied States and China will be like a chain chemical reaction, which will definitely go beyond the borders of the two countries and break the global economic system.¶ In the 1930s, the severe trade protectionism once reduced the global trade volume by two-thirds and led to a great global economic depression. The Untied States was a main trade protection participator at that time. In 2010, affected by the international financial crisis, the global trade volume decreased by 12 percent, a new record after the Second World War ended. ¶ "It has been proven by the history that the trade war between economic giants will be extremely disastrous. I hope that the U.S. politicians will not take the risk for their private interests of political election," said Ni. ¶ Ni believes that if a trade war occurs between the United States and China, it will be much fiercer and destructive than the global economic depression starting in 1929 and will even lead to political and military confrontations in some sensitive regions.

#### That causes world war

Panzner 8—25-year veteran of the markets who has worked for for HSBC, Soros Funds, ABN Amro, Dresdner Bank, and J.P. Morgan Chase. New York Institute of Finance faculty member and a graduate of Columbia University. (Michael, Financial Armageddon, 136-8)

Continuing calls for curbs on the flow of finance and trade will inspire the United States and other nations to spew forth protectionist legislation like the notorious Smoot-Hawley bill. Introduced at the start of the Great Depression, it triggered a series of tit-for-tat economic responses, which many commentators believe helped turn a serious economic downturn into a prolonged and devastating global disaster. But if history is any guide, those lessons will have been long forgotten during the next collapse. Eventually, fed by a mood of desperation and growing public anger, restrictions on trade, finance, investment, and immigration will almost certainly intensify. Authorities and ordinary citizens will likely scrutinize the cross-border movement of Americans and outsiders alike, and lawmakers may even call for a general crackdown on nonessential travel. Meanwhile, many nations will make transporting or sending funds to other countries exceedingly difficult. As desperate officials try to limit the fallout from decades of ill-conceived, corrupt, and reckless policies, they will introduce controls on foreign exchange. Foreign individuals and companies seeking to acquire certain American infrastructure assets, or trying to buy property and other assets on the cheap thanks to a rapidly depreciating dollar, will be stymied by limits on investment by noncitizens. Those efforts will cause spasms to ripple across economies and markets, disrupting global payment, settlement, and clearing mechanisms. All of this will, of course, continue to undermine business confidence and consumer spending. In a world of lockouts and lockdowns, any link that transmits systemic financial pressures across markets through arbitrage or portfolio-based risk management, or that allows diseases to be easily spread from one country to the next by tourists and wildlife, or that otherwise facilitates unwelcome exchanges of any kind will be viewed with suspicion and dealt with accordingly. The rise in isolationism and protectionism will bring about ever more heated arguments and dangerous confrontations over shared sources of oil, gas, and other key commodities as well as factors of production that must, out of necessity, be acquired from less-than-friendly nations. Whether involving raw materials used in strategic industries or basic necessities such as food, water, and energy, efforts to secure adequate supplies will take increasing precedence in a world where demand seems constantly out of kilter with supply. Disputes over the misuse, overuse, and pollution of the environment and natural resources will become more commonplace. Around the world, **such tensions will give rise to full scale military encounters,** often with minimal provocation. In some instances, economic conditions will serve as a convenient pretext for conflicts that stem from cultural and religious differences. Alternatively, nations may look to divert attention away from domestic problems by channeling frustration and populist sentiment toward other countries and cultures. Enabled by cheap technology and the waning threat of American retribution, terrorist groups will likely boost the frequency and scale of their horrifying attacks, bringing the threat of random violence to a whole new level. Turbulent conditions will encourage aggressive saber rattling and interdictions by rogue nations running amok. Age-old clashes will also take on a new, more heated sense of urgency. China will likely assume an increasingly belligerent posture toward Taiwan, while Iran may embark on overt colonization of its neighbors in the Mideast. Israel, for its part, may look to draw a dwindling list of allies from around the world into a growing number of conflicts. Some observers, like John Mearsheimer, a political scientist at the University of Chicago, have even speculated that an “intense confrontation” between the United States and China is “inevitable” at some point. More than a few disputes will turn out to be almost wholly ideological. Growing cultural and religious differences will be transformed from wars of words to battles soaked in blood. Long-simmering resentments could also degenerate quickly, spurring the basest of human instincts and triggering genocidal acts. Terrorists employing biological or nuclear weapons will vie with conventional forces using jets, cruise missiles, and bunker-busting bombs to cause widespread destruction. Many will interpret stepped-up confl icts between Muslims and Western societies as the beginnings of a new world war.

#### Most recent studies provide a direct connection between poor economic relations and military conflict

Royal 10 – Jedediah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, 2010, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-215

Less intuitive is how **periods of economic decline** may **increase the likelihood of external conflict**. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defence behaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson's (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crises could usher in a redistribution of relative power (see also Gilpin, 1981) that leads to **uncertainty about power balances, increasing the risk of miscalculation** (Fearon, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner, 1999). Separately, Pollins (1996) **also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers**, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland's (1996, 2000) theory of trade expectations suggests that ‘future expectation of trade’ is a significant variable in understanding economic conditions and security behaviour of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, **if the expectations of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases**, as states will be inclined to use force to gain access to those resources. Crises could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states.4 Third, others **have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find a strong correlation between internal conflict and external conflict**, particularly during periods of economic downturn. They write, **The linkages between internal and external conflict and prosperity are strong and mutually reinforcing.** Economic conflict tends to spawn internal conflict, which in turn returns the favour. Moreover, the presence of a recession tends to amplify the extent to which international and external conflicts self-reinforce each other. (Blomberg & Hess, 2002, p. 89)Economic decline has also been linked with an increase in the likelihood of terrorism (Blomberg, Hess, & Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. ‘Diversionary theory’ suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to fabricate external military conflicts to create a ‘rally around the flag’ effect. Wang (1996), DeRouen (1995), and Blomberg, Hess, and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997), Miller (1999), and Kisangani and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak Presidential popularity, are statistically linked to an increase in the use of force. In summary, **recent economic scholarship positively correlates economic integration with an increase in the frequency of economic crises, whereas political science scholarship links economic decline with external conflict at systemic, dyadic and national levels**.5 This implied connection between integration, crises and armed conflict has not featured prominently in the economic-security debate and deserves more attention. This observation is not contradictory to other perspectives that link economic interdependence with a decrease in the likelihood of external conflict, such as those mentioned in the first paragraph of this chapter. Those studies tend to focus on dyadic interdependence instead of global interdependence and do not specifically consider the occurrence of and conditions created by economic crises. As such, the view presented here should be considered ancillary to those views.

#### The tariff prevents clean energy cooperation

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.

#### That’s key to global clean tech diffusion

Lin 11 [Justin Yifu Lin, Former World Bank Chief Economist and Senior Vice President, “China, the US and clean energy cooperation,” Jan 21 2011, http://blogs.worldbank.org/developmenttalk/china-the-us-and-clean-energy-cooperation]

Second, there are also major long-term global benefits from clean energy cooperation between the U.S. and China. Costs of clean energy investment would fall throughout the world, making such investment more financially sustainable. Clean energy is also a crucial part of providing energy access to better meet basic needs, to enhance growth, and to reduce poverty.

Making clean energy more available and more affordable won’t be easy. It entails making new and improved low-carbon technologies more cost-competitive on a global scale, and supporting developing countries as they strive to expand energy availability. Here, the capacities in both China and the U.S. for innovation and increased diffusion of clean energy technology come to the fore.

#### Specifically derails the diffusion of solar

Green 11, 12-19, Martin, executive research director at the Photovoltaics Centre of Excellence at the University of New South Wales in Australia, “A Solar Trade War Could Put Us All in the Dark”, http://www.technologyreview.com/news/426392/a-solar-trade-war-could-put-us-all-in-the-dark/

The brewing solar trade war between the United States and China sullies what should be a triumphant moment in the global photovoltaic (PV) industry: the arrival of affordable solar electricity.¶ After decades of global competition and collaboration, **many solar markets around the world have reached grid parity**—the point at which generating solar electricity, without subsidies, costs less than the electricity purchased from the grid. In other words, solar technology is ready to be a major contributor to solving our planet's energy and environmental crisis.¶ However, trade protectionism threatens to inhibit the solar industry **at the very time when it is breaking through to a new level of global interdependence, collaboration, and maturity**.¶ On October 18, the U.S. government was asked to impose tariffs on imports of Chinese solar cells and modules, based on the argument that China-based producers have been heavily subsidized and are selling solar products at unfairly low prices. Perhaps not surprisingly, some Chinese companies have now asked the Chinese government to impose tariffs on imports of American solar products, arguing that U.S.-based producers have been heavily subsidized, too. And just like that, the production of affordable and competitive solar products has become a political liability in the world's two largest producers and consumers of energy.¶ The success of the entire solar industry hinges on the success of not one country or one company, but global competition and collaboration, which drives efficiency improvements and cost reductions worldwide. If trade barriers are imposed in the U.S., China, or Germany, it could cause a significant increase in the price of solar products and therefore solar electricity, globally. **That could cause a further erosion of political support** for the solar industry at a critical juncture.¶ Altogether, a solar trade war could undermine decades of international innovation and stall the global adoption of advanced solar technology.

#### The alternative is global war

Droege 2 [Peter Droege, Asia Pacific chair of the World Council for Renewable Energy, Professor at the University of Liechtenstein and the University of Newcastle School of Architecture and Built Environment; “Renewable Energy and the City: Urban life in an age of fossil fuel depletion and climate change,” 23 Jan 2002, http://enviroscope.iges.or.jp/contents/13/data/PDF/WORD%20Pdf/9-1Droege\_peter.pdf]

While a few local urban systems may seem relatively safe from a terminal fossil fuel shock through their reliance on hydro-electric, nuclear or bio-energetic power, no currently utilized alternative energy source alone can keep operational the vast majority of cities. Also, the interconnectedness of the global system makes it impossible to seriously contemplate the survivability of regional pockets of self-sufficiency. The only viable option to secure the continuity of urban civilization in this century is a system-wide turn to a broad portfolio of renewable energy sources based on an overwhelming availability of solar, wind, wave, hydrogen based and other renewable forms of energy. The alternative to this path lies in a massive military build-up as its is already being prepared by some leading economies. A global and open escalation of the simmering war over regional fossil resources, currently contained largely in local and regional conflicts is inevitable without a broad and world-wide introduction of renewable energy sources. Cities and city dwellers would bear the brunt of such conflicts. However, the impending evaporation of fossil fuels is not the only threat to the survivability of the modern global urban system.

#### The tariff undermines the Durban platform for stopping climate change

Barbier 12 (Edward B—the John S. Bugas Professor of Economics, University of Wyoming, “Can the US and China Cooperate over Climate and Clean Energy?”, May 28, 2012, http://chinausfocus.com/energy-environment/can-the-us-and-china-cooperate-over-climate-and-clean-energy/)

One of the few bright spots in recent international negotiations to replace the expiring 1997 Kyoto Protocol on curbing global greenhouse gas (GHG) emissions has been the framework agreement concluded at the 17th Conference of the Parties (COP17) that took place in Durban, South Africa in December 2011. In addition to extending the Kyoto Protocol, COP17 produced the Durban Platform for Enhanced Action as the foundation for a prospective and comprehensive climate change agreement in 2015. However, the Durban Platform is most notable for securing the tentative inclusion of the United States and China – the world's two biggest GHG emitters – who were not signatories to the Kyoto Protocol. The Durban Platform may indicate that closer bilateral trade and economic ties between China and the US is fostering their cooperation on a number of global issues, including climate change.¶ International trade and capital relationships between the two countries certainly reflect their increasing close economic ties. Around 17% of imports to the US, totalling $323 billion, are from its largest trading partner China. US foreign direct investment in China is $50 billion annually, whereas China investment in the US is $790 million per year. ¶ As the world's two largest economies, China and the US are also impacting the global environment, especially climate. Since 1950, the US has been responsible for approximately 29% of energy-related carbon dioxide emissions, and China for about 8%. However, in 2007 China surpassed the US as the world’s top annual emitter of GHGs. The two countries are now responsible for 40% of global annual GHG emissions.¶ Thus, it is possible that closer economic ties between the US and China are also fostering bilateral cooperation on climate change and other global environmental problems. Increased cooperation between the US and China could in turn contribute to the success of multilateral negotiations. As a result, the Durban Platform may signal that it is in the mutual interests of China and the US to take the lead in global cooperation over controlling climate change.¶ However, cooperation between the US and China is less evident in the case the promotion of clean energy. Here, more parochial national economic interests seem to dominate the incentives arising from bilateral economic ties.¶ For example, the Obama Administration recently announced tariffs of 31% and higher on solar panels imported from China. These tariffs are in addition to the existing US duties of 2.9% to 4.7% on Chinese solar panels, which were imposed in March 2012 due to Chinese subsidies to their panel industry. The reasons cited for the new tariffs is that Chinese solar panels are accused of being "dumped" – i.e. sold at below fair-market value – in the United States. ¶ Certainly, Chinese solar panel imports have had a huge impact on the US market. The US solar industry, which includes manufacturing, installation and services, employs around 100,000 people. But it is panel manufacturing that cannot compete with Chinese imports, which last year amounted to $3.1 billion and now accounts for half of the US market. In addition, some US solar panel manufacturers have transferred their operations to China, to take advantage of the lower costs and subsidies there.¶ This current confrontation over trade in solar panels arises from major differences in the Chinese and US approaches to clean energy development. ¶ China views expansion of clean energy as a sound long-term industrial and export promotion policy. It aims to be the world market leader in solar panels, water heating and batteries, wind turbines, fuel-efficient cars, high-speed rail, biofuels, and other clean energy industries. For a number of years, China has targeted development of these industries through combining pricing incentives, research and development subsidies, advanced production technology and economies of scale. This strategy is based on first supplying China's huge domestic market for clean energy as a springboard for exporting cheap manufactures to the rest of the world. For example, China is both the global leader in cumulative installed capacity and in exports of solar water heating. In 2010, China surpassed the US in terms of cumulative installed capacity of wind power, and is pushing hard to be a leading exporter to the rest of the world. Solar panel manufacturing is now following a similar pattern.¶ In contrast, the US takes, at best, a piecemeal approach to promoting clean energy. There is no long-term US strategy for energy, let alone for clean energy development. The 2008-9 stimulus package enacted by the Obama Administration included a number of short-lived incentives to spur energy efficiency and renewable energy expansion, some of which are still in place. But a long-term industrial policy for promoting clean energy through R&D subsidies and price incentives remains politically controversial. Instead, state and even local governments enact a variety of regulations and incentives, and private industry is left to respond to market forces. Given this policy climate, restricting Chinese solar panel imports that compete with US manufactures is seen as both politically popular and economically expedient.¶ However, protecting domestic clean energy manufacturing is no substitute for a long-term clean energy policy for the United States. For one, it may be counter-productive. By raising substantially the costs of solar panels, the US tariffs on Chinese imports could increase dramatically the expense of installing solar energy nationally and curtail employment. ¶ But most importantly, the solar panel trade dispute could lead to similar confrontations with China over other clean energy imports, such as wind turbines, solar batteries and biofuels. If clean energy trade disputes lead to worsening bilateral economic relations, then China and the US may have less incentive to pursue other mutual interests, such as reducing GHG emissions. It would be highly ironic, if not tragic, if a trade disagreement over clean energy undermines the fragile beginnings of US and China cooperation over global climate change.

#### Durban is a crucial starting point for emission reductions – now is key

NewScientist 11, “Dangerous decade: What follows the Durban climate deal”, 12-13, http://www.newscientist.com/article/dn21278-dangerous-decade-what-follows-the-durban-climate-deal.html

Time is running out. However successful the deal felt early on Sunday, the brutal truth for climate negotiators is this: since 2007, when a "road map" to halt warming at 2 °C was agreed in Bali, Indonesia, they have spent four years on talks that have come to nothing. The plan for a deal to come into force when the Kyoto protocol expires in December 2012 sank without trace. The Durban agreement is essentially **a pact to start again**, with some added text about the legal nature of the future deal.¶ In the final hours, European negotiators in Durban tried to address the small matter of what happens in the next decade – the so-called "ambition gap". A working group made up of a small number of nations will now investigate ways to **persuade countries to boost their voluntary pledges before 2020**. It may also look for new ways of curbing emissions not currently covered by any targets, legal or otherwise – everything from international air travel and shipping, to the soot from a billion African cooking stoves. If they can muster enough political will, all is not lost. There are ways to close the ambition gap (see diagram), but nations must act now.

#### Warming is real, anthropogenic and causes extinction

Flournoy 12 -- Citing Feng Hsu, PhD NASA Scientist @ the Goddard Space Flight Center. Don Flournoy is a PhD and MA from the University of Texas, Former Dean of the University College @ Ohio University, Former Associate Dean @ State University of New York and Case Institute of Technology, Project Manager for University/Industry Experiments for the NASA ACTS Satellite, Currently Professor of Telecommunications @ Scripps College of Communications @ Ohio University (Don, "Solar Power Satellites," January, Springer Briefs in Space Development, Book, p. 10-11

In the Online Journal of Space Communication , Dr. Feng Hsu, a  NASA scientist at Goddard Space Flight Center, a research center in the forefront of science of space and Earth, writes, “The evidence of global warming is alarming,” noting the potential for a **catastrophic planetary climate change** is real and troubling (Hsu 2010 ) . Hsu and his NASA colleagues were engaged in monitoring and analyzing climate changes on a global scale, through which they received first-hand scientific information and data relating to global warming issues, including the dynamics of polar ice cap melting. After discussing this research with colleagues who were world experts on the subject, he wrote: I now have no doubt global temperatures are rising, and that **global warming is a serious problem confronting all of humanity**. No matter whether these trends are due to human interference or to the cosmic cycling of our solar system, there are two basic facts that are crystal clear: (a) there is **overwhelming scientific evidence** showing positive correlations between the level of CO2 concentrations in Earth’s atmosphere with respect to the historical fluctuations of global temperature changes; and (b) the **overwhelming majority of the world’s scientific community** is in agreement about the risks of a potential catastrophic global climate change. That is, if we humans continue to ignore this problem and do nothing, if we continue dumping huge quantities of greenhouse gases into Earth’s biosphere, humanity will be at dire risk (Hsu 2010 ) . As a technology risk assessment expert, Hsu says he can show with some confidence that the planet will face more risk doing nothing to curb its fossil-based energy addictions than it will in making a fundamental shift in its energy supply. “This,” he writes, “is because the risks of a catastrophic anthropogenic climate change can be potentially the extinction of human species, a risk that is simply too high for us to take any chances” (Hsu 2010 )

#### Public debate is necessary to inform the public about the risks of protectionism

Sungjoon Cho, Assistant Professor of Law, Chicago-Kent College of Law, Illinois Institute of Technology, Doha's Development, 25 Berkeley J. Int'l L. 165, 2007, LN

In this regard, (public) ignorance is not bliss in the making of trade policy. It is under through this ignorance, or neglect, that many protectionist policies are passed without rigorous cost-benefit analyses. n207 They eventually encroach upon the economic health of the nation and deteriorate the income distribution. Therefore, citizens should educate themselves about the hidden cost of protectionism through more participation and deliberation on this issue. They have to diligently attend hearings and debates on trade policies and express their informed views to local representatives. Out of the failure of this political engagement emerged the ill-conceived Smoot-Hawley Tariff Act of 1930 n208 and soon triggered the global tariff wars that contributed to the outbreak of the Second World War.

### Domestic

#### Advantage 2 is Domestic Solar

#### Solar is approaching grid parity and widespread adoption in the US – the tariff derails that

Jabusch 5/18/12 [Garvin Jabusch, cofounder and chief investment officer of Green Alpha Advisors and co-manager of the Green Alpha Next Economy Index. Jabusch was previously Director of Forward Sustainable Investments, a business unit of Forward Management, and Vice President, Strategic Services at Morgan Stanley. “Tariffs on Chinese Solar Are Bad for Us All,” http://sierraclub.typepad.com/gaa/2012/05/tariffs-on-chinese-solar-are-bad-for-us-all.html]

In addition, tariffs by definition are inflationary. A customer who now has to pay significantly more for his or her preferred brand of panel is experiencing inflation, but so too is the customer buying the American made panel that now is free to cost far more than it did yesterday due to the absence of tough competition. With panels of all kinds going up in price, so does the cost of electricity they produce, meaning the portion of the grid they supply will get more expensive, making the blended grid electricity rates go up, in turn driving up the costs of every home and business that use electricity. Inflation all around, then. ¶ The problem isn’t, as claimed by Commerce, that China has been dumping unfairly priced solar panels on the U.S., it’s that our domestic solar industry as a whole has not remained competitive in the face of fierce global competition. China’s panels are competitive because "[t]hey've figured out that clean-energy manufacturing will be an area of major growth and are investing vastly more than we are to support it." In the U.S., we’ve invested a fraction as much as China into solar and other clean energy sources, so naturally, we’re behind them on the cost curve. Commerce’s decision will do little to slow the growth and technological progress of solar globally; it will just mean the U.S. won’t be competing in this key piece of powering the future economies.¶ There are of course American firms, such as New Hampshire based GT Advanced Technologies (GTAT), who have managed to compete very well with Chinese solar without Commerce’s protectionism. Tom Gutierrez, CEO of GT Advanced Technologies, recently had this to say on the opinion page of the Boston Globe:¶ I look at the time and energy invested in this investigation and wonder: Why, and what for? This is counterproductive to the primary objective of the US solar industry: Getting solar to grid parity. Tariffs, charges of dumping, possible trade tensions — these only enable high-cost manufacturing to continue, resulting in higher solar costs for US consumers. In the end, such moves negatively impact the growth of high-quality solar jobs in the United States.¶ Instead of carrying water for foreign-owned businesses, we should reward the traits that ensure success in the global marketplace: Business adaptability and commitment to innovation. To win in this race, it’s really about hard work and figuring out how to survive and thrive against highly-motivated competition. We need to be fostering real innovation — not rewarding inefficient businesses that seek government handouts. GT and many other US-based companies have proven that we can compete against fierce Asian competitors and win. We just have to run better businesses.¶ Right. Or as I said in a previous post back in January 2011, “we should try competing instead of complaining.” And Gutierrez makes another interesting point, if these tariffs are disliked by many of the U.S. companies they’re meant to protect, who are they really for? What’s their real purpose? It’s difficult not to notice, as Susan Wise, spokeswoman for SunRun, told Forbes, that “[i]f finalized, this decision would move us backward in the effort to make solar affordable for Americans,”. “It would make prices higher at the exact moment when solar power is starting to become competitive with fossil fuels in more markets.” [Italics mine.]¶ Germany’s SolarWorld AG, which brought the case to the Commerce Department, does not have the best record of defending its own industry. In Germany, they have long lobbied to lower solar feed-in tariffs, meaning, effectively, they’ve been trying to stop receiving free money. What sane business does that? I’m sure SolarWorld’s shareholders are stymied by the company’s anti-profit attitude. Both efforts, to reduce subsidies in Germany and to start a solar trade war between China and the U.S., point to a company that does not have its industry’s best interests in mind. It may be worth remembering that a large part of SolarWorld AG used to be Shell Oil’s “crystalline silicon” division. Shares of SolarWorld AG are up “as much as 18 percent” the morning after the tariff announcement, but U.S. based manufacturer First Solar (FSLR) has been off by as much as 5.8 percent this morning

#### Chinese retaliation will further devastate domestic solar

Pierobon 12, 2-29, James, former Chief Energy Writer and Political Correspondent at the Houston Chronicle , “the case against a tariff on imported Chinese solar panels”, http://theenergycollective.com/jimpierobon/77861/guest-opinion-jigar-shah-makes-case-against-tariff-imported-chinese-solar-panels

Last October the US subsidiary of German-based SolarWorld, a manufacturer of polysilicon solar cells, filed a complaint with the U.S. Department of Commerce and International Trade Commission alleging that China was selling solar cells in the US a low prices because of unfair subsidies. SolarWorld defends its action in terms of protecting US manufacturing jobs. But a closer look at the US solar industry demonstrates that SolarWorld, if successful, will do far more to harm the US solar industry than competition from Chinese solar cell manufacturers ever could.¶ First, let’s stipulate that the goal of the trade case is to raise the price of solar power to US consumers. This is exactly what Gordon Brinser, President of SolarWorld Industries America, told National Public Radio — “The prices will have to increase, you know, a little.” Of course, Brinser’s company is seeking tariffs of 50% in one instance and 250% in two others – hardly “a little” price increase. Such a steep increase, while good for SolarWorld, willhave adevastat**ing** impact on **the rest of US solar industry where the** vast majority of **jobs are.**¶ According to The Solar Foundation, of the more than 100,000 jobs in the U.S. solar industry in 2011, fully 52% were in installation, 18% in sales and distribution, and 24% in manufacturing with the bulk of those jobs in the manufacture of items **other than** polysilicon solar **cells**. Primarily, because of the significant decline in the cost of polysilicon and prices for solar cells, modules and panels, the growth of solar installations in the US has skyrocketed. Yet, both industry **growth and jobs are threatened** by SolarWorld’s selfish petition.¶ Recently, the Coalition for Affordable Solar Energy (CASE), which represents 97 to 98% of the jobs in America’s solar industry, asked The Brattle Group to analyze the impact of tariffs on imported solar cells. The findings are stunning: a 100% tariff on imported solar PV cells and modules from China would result in as many as 50,000 net lost jobs in the U.S. over the next three years. Furthermore, **retaliatory tariffs** placed **on U.S. exports of polysilicon to China would put nearly 11,000 more American jobs at risk** in the first year following tariff imposition.¶ Through 2010, the last year for which data are available, the US solar industry had a positive balance of trade with China of about $400 million. This is due, in large part, to the polysilicon and solar manufacturing equipment that U.S. companies sell to China. Just as installers will be adversely affected by higher prices for solar panels, **so too will US manufacturers that currently sell to Chinese companies** and that are worried about SolarWorld’s action triggering a trade war. For example, the Chairman and CEO of Dow Corning Corp. wrote in a December oped that their company had invested $5 billion to expand polysilicon manufacturing in the U.S. They argued that “The pending case raises concerns, but resolving this issue through an adversarial confrontation will impede both countries’ abilities to benefit from a growing solar market both in the U.S. and abroad. Such benefits are only possible through lower prices catalyzed by healthy competition between global manufacturers.”¶ Finally, in addition to the negative impact on American jobs and sales of U.S. manufactured solar goods to China, a tariff on solar cell imports will undercut the national objective of expanding the use of clean, renewable energy. In recognizing the importance of obtaining the lowest cost solar cells to expand the use of solar energy in the U.S., Robert F. Kennedy Jr. wrote in the LA Times last year, “America needs policies that will release its potential for alternative energy, but a trade war with China is a terrible idea — for American jobs, prosperity and the environment.”

#### Chinese imports are key – the tariff directly raises prices

Berkman et al 12 [Dr. Mark P. Berkman, Ph.D. in Public Policy Analysis, expert in applied microeconomics and principal at the Brattle Group; Dr. Lisa J. Cameron, Ph.D. in Economics and Senior Consultant for the Brattle Group; Judy Chang, economist with expertise in the analysis of electricity power markets and principal at the Brattle Group; “The Employment Impacts of Proposed Tariffs on Chinese Manufactured Photovoltaic Cells and Modules,” January 30 2012, http://coalition4affordablesolar.org/wp-content/uploads/2012/01/TBG\_Solar-Trade-Impact-Report.pdf]

Average module prices in the U.S. are largely determined by Chinese imports. A major industry report predicted that 41% of all PV installations in the U.S. used panels subject to a tariff in the third quarter of 2011.25Based on current market trends that percentage is increasing, and our analysis assumes an average of 50% of U.S. installations would use panels subject to the tariff over the next three years. We assume that with the downward price pressure from Chinese imports removed, average module prices will increase to the average world price if the tariff is set at a rate high enough to block Chinese imports. A 50% tariff will raise prices to within 5% of the current world average, while a 100% tariff will raise the price to the world average. This represents a 25-30% increase over module prices in absence of a tariff. For example, in 2012 residential module prices would be expected to rise from $0.85/W without a tariff to $1.07 under a 50% tariff, and $1.17 under a 100% tariff. Tariff rates above 100% would have littlefurther impact, as China is already effectively priced out of the U.S. market at the 100% tariff level. Figure 3 below depicts predicted blended module prices over the next three years in each consumer sector with and without the imposition of a 50% or 100% tariff on Chinese imports.

#### Frequent heat wave blackouts are coming now

Stone 8/8/12 [Brian Stone, Assistant Professor in the City and Regional Planning Program at the Georgia Institute of Technology, “Urban Heat Islands and Climate Change: Planning for Extreme Heat in Cities,” http://www.epa.gov/hiri/resources/transcripts/8\_aug\_2012-webcasttranscript-stone.pdf]

Most critical is your logical infrastructure. In 2003, the same year as the European heat wave, we had massive blackouts. Some of you on the call might have been in the blackout zone in the Northeastern U.S. About 50 million people lost power. This only lasted for about 24 hours, but had it been prolonged it’s easy to see how the United States can start to approximate events that happen in Europe or Russia, places where they don’t have widespread air conditioning like we do. This can be very dangerous, particularly if you're losing the kind of infrastructure not just in terms of cooling but water delivery.¶ Slide 12: Trends in Electrical System Failures¶ And these **trends can be increasing over time**, the number of blackouts across the United States per year, as shown here. And this has more than tripled over the period that you see. So the likelihood of extreme heat wave with a prolonged blackout in the major U.S. cities is certainly increasing.

#### Solar adoption in the US solves

Perez et al 11 [Richard Perez, Research Professor, Atmospheric Sciences Research Center, SUNY; Ken Zweibel, director of the GW Solar Institute at George Washington University; Thomas Hoff, Founder of Clean Power Research and President of its Research and Consulting Group; “Solar power generation in the US: Too expensive, or a bargain?” Energy Policy Volume 39, Issue 11, November 2011, Pages 7290–7297]

Solar generators, distributed PV in particular, are not available at will,2 but often do provide power when most needed, and as such can capture substantial effective capacity value (Perez et al., 2009). This is because peak electrical demand is driven by commercial daytime air conditioning (A/C) in much of the US reaching a maximum during heat waves. The fuel of heat waves is the sun; a heat wave cannot take place without a massive local solar energy influx. The bottom part of Fig. 2 illustrates an example of a heat wave in the southeastern US in the spring of 2010 and the top part of the figure shows the cloud cover at the same time: the qualitative agreement between solar availability and the regional heat wave is striking. Quantitative evidence has also shown that the mean availability of solar generation during the largest heat wave-driven rolling blackouts in the US was nearly 90% ideal (Letendre and Perez, 2006). One of the most convincing examples, however, is the August 2003 Northeast blackout that lasted several days and cost nearly $8 billion region-wide (Perez et al., 2005). The blackout was indirectly caused by high demand, fueled by a regional heat wave3. As little as 500 MW of distributed PV region-wide would have kept every single cascading failure from feeding into one another and precipitating the outage. The analysis of a similar subcontinental-scale blackout in the Western US a few years before that led to nearly identical conclusions (Perez et al., 1997).¶ In essence, the peak load driver, the sun via heat waves and A/C demand, is also the fuel powering solar electric technologies. Because of this natural synergy, the solar technologies deliver hard-wired peak shaving capability for the locations/regions with the appropriate demand mix – peak loads driven by commercial/industrial A/C – that is to say, much of America. This capability remains significant up to 30% capacity penetration (Perez et al., 2010), representing a deployment potential of nearly 375 GW in the US.

#### Blackouts cause disease spread

Kelly and Osterholm 08 [Nicholas S. Kelley, Research assistant with The Center for Infectious Disease Research & Policy(CIDRAP) Business Source and a doctoral student in the Divison of Environmental Health Sciences at the University of Minnesota's School of Public Health, and Michael T. Osterholm, PhD, Director of the Center for Infectious Disease Research & Policy, director of the NIH‐supported Center of Excellence for Influenza Research and Surveillance within CIDRAP, a professor in the Division of Environmental Health Sciences, School of Public Health, and an adjunct professor in the Medical School, University of Minnesota. Written in their report “Pandemic Influenza, Electricity, and the Coal Supply Chain” http://www.sovrn.com/PDF/pubs\_CIDRAP\_Coal\_Report.pdf]

When one considers public health preparedness, the availability of electricity generally is not considered a factor of concern for public health planners. Electricity is typically regarded as reliable and is, in most instances, available for all public health needs. Whether planning for influenza vaccination clinics, investigating outbreaks of a foodborne disease, or responding to a bioterrorism event, public health workers almost always assume that the lights will be on and power available. For disaster scenarios that would compromise electricity, such as after a hurricane, planning activities take into account the loss of power. Most pandemic planning activities, however, do not consider the potential for the loss of electricity. ¶ Most Americans rarely experience power outages for more than a short time (Apt 2004, Hines 2008). Between 1984 and 2006, organizations reported to the US Department of Energy (DOE) and National Electricity Reliability Corporation (NERC) that 861 disturbances affected power delivery (Hines 2008). Of these disturbances, some 44% were related to weather (eg, ice storms, wind), nearly 30% involved equipment failure, and 5% were caused by supply shortages (Hines 2008). More than one cause can be reported for a failure (eg, high winds and ice storms could be listed for an outage), so these numbers are approximate. ¶ The United States has had several major electrical blackouts in the last half century, yet very little has been written about the public health impact of long‐term electrical power loss. Much, however, has been published about short‐term electrical blackouts and their impact on acute care, the risks of carbon monoxide poisoning from generators, and the surge in medical needs in the community after a blackout. Literature can be found on such topics as heat waves and the health impact of associated blackouts, though these articles focus on specific situations and do not expand analysis to broader public health implications related to long‐term electrical blackouts. ¶ Hurricane Katrina was a vivid reminder that key components of public health, such as safe water and refrigeration of food and medications, can be rendered ineffective if critical infrastructures break down. Power outages were common after Katrina, because parts of the electrical infrastructure were destroyed. Many healthcare facilities lost power for weeks (Currier 2006, LSU 2006). Hospitals and clinics were not the only facilities impaired by the loss of power. Three major pipelines in the Gulf Coast that transport oil and fuel to the Midwest and east coast of the United States were either totally shut down or partially out of service for a few days (Slaughter 2005). The biggest problem facing crews restoring power after Katrina was the "lack of food, water and shelter for its repair crews who are literally sleeping in their trucks" (Office of Electricity Delivery and Energy Reliability 2005). Conditions like these lead to such public health problems as increasing risks of infectious disease and occupational injury.¶ Public health preparedness today, whether for a chronic disease or a pandemic, depends on infrastructure advances of the past century and, in particular, on the availability of electricity. The 20th century saw great improvements in public health (CDC 1999c), one of the most significant of which concerned the control of infectious diseases (CDC 1999a). The availability of clean drinking water, sanitary sewage systems, and refrigeration—all of which require electricity—accounted for some of the largest drops in infectious disease mortality (CDC 1999a, CDC 1999b). The ability to provide safe drinking water in the 1900s had a significant impact on reducing infectious disease mortality. For example, the leading cause of mortality of children in Minneapolis in 1900 was typhoid fever, the result of consuming water from contaminated individual water supplies (Osterholm MT, unpublished data). Today, standard environmental health practices like ensuring the safety and maintenance of our water systems is considered the foundation of public health. Such practices typically operate in the background—unless a breakdown in the infrastructure occurs.

#### Extinction

Greger 08 **–** M.D., is Director of Public Health and Animal Agriculture at The Humane Society of the United States (Michael Greger, , Bird Flu: A Virus of Our Own Hatching, <http://birdflubook.com/a.php?id=111>)

Senate Majority Leader Frist describes the recent slew of emerging diseases in almost biblical terms: “All of these [new diseases] were advance patrols of a great army that is preparing way out of sight.”3146 Scientists like Joshua Lederberg don’t think this is mere rhetoric. He should know. Lederberg won the Nobel Prize in medicine at age 33 for his discoveries in bacterial evolution. Lederberg went on to become president of Rockefeller University. “Some people think I am being hysterical,” he said, referring to pandemic influenza, “but there are catastrophes ahead. We live in evolutionary competition with microbes—bacteria and viruses. There is no guarantee that we will be the survivors.”3147 There is a concept in host-parasite evolutionary dynamics called the Red Queen hypothesis, which attempts to describe the unremitting struggle between immune systems and the pathogens against which they fight, each constantly evolving to try to outsmart the other.3148 The name is taken from Lewis Carroll’s Through the Looking Glass in which the Red Queen instructs Alice, “Now, here, you see, it takes all the running you can do to keep in the same place.”3149 Because the pathogens keep evolving, our immune systems have to keep adapting as well just to keep up. According to the theory, animals who “stop running” go extinct. So far our immune systems have largely retained the upper hand, but the fear is that given the current rate of disease emergence, the human race is losing the race.3150 In a Scientific American article titled, “Will We Survive?,” one of the world’s leading immunologists writes: Has the immune system, then, reached its apogee after the few hundred million years it had taken to develop? Can it respond in time to the new evolutionary challenges? These perfectly proper questions lack sure answers because we are in an utterly unprecedented situation [given the number of newly emerging infections].3151 The research team who wrote Beasts of the Earth conclude, “Considering that bacteria, viruses, and protozoa had a more than two-billion-year head start in this war, a victory by recently arrived Homo sapiens would be remarkable.”3152 Lederberg ardently believes that emerging viruses may imperil human society itself. Says NIH medical epidemiologist David Morens, When you look at the relationship between bugs and humans, the more important thing to look at is the bug. When an enterovirus like polio goes through the human gastrointestinal tract in three days, its genome mutates about two percent. That level of mutation—two percent of the genome—has taken the human species eight million years to accomplish. So who’s going to adapt to whom? Pitted against that kind of competition, Lederberg concludes that the human evolutionary capacity to keep up “may be dismissed as almost totally inconsequential.”3153 To help prevent the evolution of viruses as threatening as H5N1, the least we can do is take away a few billion feathered test tubes in which viruses can experiment, a few billion fewer spins at pandemic roulette. The human species has existed in something like our present form for approximately 200,000 years. “Such a long run should itself give us confidence that our species will continue to survive, at least insofar as the microbial world is concerned. Yet such optimism,” wrote the Ehrlich prize-winning former chair of zoology at the University College of London, “might easily transmute into a tune whistled whilst passing a graveyard.”3154

#### Natural gas price spikes represent a huge threat to US industry, including fertilizers – supply expansions don’t solve

Stones 9 [Edward Stones, Director of Energy Risk at Dow Chemical Company, Dow Chemical Company Statement for the Record at the Senate Committee on Energy and Natural Resources hearing on the Role of Natural Gas in Mitigating Climate Change, October 28 2009, http://www.energy.senate.gov/public/index.cfm/files/serve?File\_id=9b7877b6-e616-76f1-3513-0c3fe4cda514]

In 2009, as in 2002, 2004 and 2006, drilling has declined dramatically as price has fallen. After each trough, natural gas demand and price rise once the economy turns, signaling the production community to increase drilling. During the lag between the pricing signals and new production, only one mechanism exists to rebalance supply and demand: demand destruction brought about by price spikes. Demand destruction is an antiseptic economic term for job destruction. ¶ These price spikes have significantly contributed to the US manufacturing sector losing over 3.7 million jobs, the chemical industry losing nearly 120,000 jobs, and the permanent loss of nearly half of US fertilizer production capacity. The manufacturing sector, which has limited fuel switching ability, has become the shock absorber for high natural gas costs. ¶ Although increased supply from shale gas appears to have changed the production profile, we have seen similar scenarios occur after past spikes. In 1998, significant new imports from Canada came on line; in 2002-2003, there were new supplies from the Gulf of Mexico and in 2005, new discoveries in the Rockies were brought into play. In each case, the initial hopes were too high and production increases were not as large as initially expected. Some claim that the lag expected for shale gas will be shorter due to the reduced drilling scope of shale type wells. However the latest available data show natural gas production peaked with the same delay from the start of drilling reductions as in other cycles. The inherent lags between changes in drilling and production created natural gas spikes over the last ten years, and will continue to do so after this and every trough.

#### Affordable solar power acts as a hedge against natural gas price spikes – ensures stability for industry

Powerfin Partners 11 [Powerfin Partners is a manager of institutional funds for solar projects in North America, with meaningful experience in energy capital markets, legal and regulatory matters, and renewable engineering, “Why the Solar Industry Lacks Pricing Power,” December 20, 2011, http://www.powerfinpartners.com/new\_site/pdf/Why%20the%20Solar%20Industry%20Lacks%20Pricing%20Power%20122011.pdf]

While myriad uncertainties surround the future of natural gas pricing, what is certain is the cost of solar power over the next 20-25 years, at least. Not only is the price of solar competitive, but, long-term power purchase contracts, coupled with the predictability of solar radiation, make it a uniquely stable source of power (see our September 23, 2010 article). We believe that the incredible price stability of solar can benefit consumers greatly. For instance, municipal budgets that are funded by local utilities will be in dire straits when natural gas prices spike. The plain fact is that US power markets have changed dramatically since deregulation, and fixed-priced solar generating assets are the only protection against otherwise volatile gas-fired peak power prices. ¶ Remember, owners of assets, such as natural gas or solar, make more money with higher prices. ¶ Likewise, any trader or power marketer makes the most money in volatile markets. These are simple market facts and these parties are acting as any investor should – just not necessarily in the best interest of municipal stability. Therefore, we want to warn consumers that, by the time gas-fired electricity is routinely more expensive than solar power, it will be too late to buy solar at today’s low prices – market efficiencies and rational investors will prevail.¶ In addition, beyond simply providing a hedge against natural gas price volatility, fixed-price solar electricity enables consumers – whether residential, commercial and industrial, or municipal – to plan and budget with increased certainty. Current city budgets, including critical line items such as fire, police, and teacher salaries, constantly are threatened by the specter of rising and volatile electricity prices. We believe that solar power is an elegant way to ensure that those budgets are met. ¶ Lastly, solar-generating systems last longer than 25 years, with minimal maintenance – all solar panels carry an 80%+ output warranty for 25 years. Because of this, current investment in solar generating assets will benefit consumers for several decades to come. What are the chances that natural gas prices will remain low and disconnected for the next 20-25 years? Even if you believe that the chances are remote, it is a big gamble not to hedge at least a portion of your budget with a long-lived asset like solar.

#### Spikes are the biggest threat to fertilizer – energy is key

IECA 3 [Industrial Energy Consumers of America, nonprofit organization created to promote the interests of manufacturing companies for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete, July 22 2003, “IMPACT OF THE U.S. NATURAL GAS CRISIS ON THE NORTH AMERICAN NITROGEN FERTILIZER INDUSTRY,” http://www.ieca-us.com/wp-content/uploads/072203Fertilizerbriefing.pdf]

High natural gas prices present the most serious threat to the fertilizer sector and to farmers in general, since the energy shocks of the 1970s. The fertilizer industry believes it is imperative that the U.S. develop a comprehensive and balanced energy policy – one that encourages the development of additional supplies and, at the same time, promotes the efficient use of a variety of energy sources and technologies. ¶ The fertilizer industry believes that a balanced and comprehensive energy policy is not only long overdue, but also essential to the long-term viability of this strategic sector. It is also crucial to the American farmer given that almost one-third of U.S. crop production is derived from nitrogen fertilizer.¶ If we are to prevent further decimation of the North American nitrogen fertilizer industry, the U.S. government must enact policies that stabilize the supply/demand balance for natural gas.

#### Solves food crises

The Fertilizer Institute 9 [Trade Group representing the fertilizer industry, “The U.S. Fertilizer Industry and Climate Change Policy,” April 2 2009, http://www.kochfertilizer.com/pdf/TFI2009ClimateChange.pdf]

Fertilizer nutrients – nitrogen, phosphorus and potassium – are all naturally occurring elements that are “fed” to plants and crops for healthy and abundant food and fiber production. They are currently responsible for 40 to 60 percent of the world’s food supply. Harvest after harvest, fertilizers replenish our soils by replacing the nutrients removed by each season’s crop. Each year, the world’s population grows by 80 million and fertilizers – used in an environmentally sensitive way – are critical to ensuring that our nation’s farmers grow an adequate supply of nutritious food for American and international consumers.¶ As consumers around the world demand improved diets, the global demand for fertilizers is growing rapidly. Under these circumstances, U.S. farmers compete with farmers from around the world for a limited supply of nutrients. For example, over 85 percent of our potash and over 50 percent of the nitrogen used on U.S. farms is now imported from other countries.¶ The United States needs a strong domestic fertilizer industry to ensure this valuable resource is available for a stable food production system. Today, the world’s food supply, as represented by the grain stocks-to-use ratio, is near its lowest level in 35 years. In six of the last seven years, consumption of grains and oilseeds has exceeded production. Many experts believe that we are just one natural disaster or substandard world harvest away from a full-scale food crisis.

#### 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.

#### Policy advocacy of solar is key to promote change

Laird 1 (Frank—prof in the school of intl studies at University of Denver, PhD in Political Science from MIT, MA in Physics from University of Edinburgh, “Solar Energy, Technology Policy, and Institutional Values”, Cambridge University Press, Print.)

In the last decade numerous scholars have argued for the importance of ideas in shaping public policy. They have each conceptualized ideas slightly differently, calling them beliefs, knowledge, values, ideology, and so on, and have analyzed an and changing policy, a role that is not simply a derivative of other more traditional influences on policy, such as interests or institutional structures.¶ For example, Peter Haas argues that consensual scientific and technological knowledge can be embodied in transnational scientific entities called epistemic communities. Such communities can play crucial roles in international policy making, particularly in facilitating cooperation among states, by helping governments to understand the nature of transnational problems and their feasible solutions. Epistemic communities are bound together by both shared scientific knowledge and shared normative notions about the importance of the problems under study. This combination of normative and technical ideas can influence policy because it can present decision makers with consensual interpretations of uncertain events and provide legitimation to policy decisions, particularly when members of the epistemic community become officials in government ministries. Epistemic communities can help decision makers understand what their interests are in uncertain environments. ¶ In Haas's analysis, ideas gain their force from their acceptance and promotion by a transnational community of experts, and that community's importance derives from its relationship to various governing institutions. Haas does not overplay the importance of epistemic communities, noting that government policy makers sometimes elect to ignore expert recommendations. He argues that the power of the ideas depends on whether the community members are able to garner bureaucratic power.3 The field of solar energy had had a group of experts that comprised an epistemic community. However, just at the time that it began to achieve some bureaucratic power it also began to unravel in terms of its technical and normative cohesion. ¶ John Kingdon, in his study of agenda setting and public policy, argues that ideas are more important in promoting policy than many analysts of politics and policy think. Interest group pressures certainly affect policy, but the substantive content of policies also influences their success, in particular the coherence and persuasiveness of policy advocates' arguments. At any given time numerous policy ideas float around policy systems, and the important question is why some of them take hold and others do not. Policy communities, groups of technical specialists in and out of government, champion various policy ideas. Policy communities resemble Haas's epistemic communities, except that a policy community may or may not share a consensus about the most desirable ideas for some particular policy. Ideas influence policy in Kingdon's analysis because organized institutional forces champion them and so use them in the policy system.'