# Explanation

### Debating The Offshore Wind Affirmative

Affirmative Description

The affirmative offers two incentives for offshore wind: an investment tax credit, which gives a tax break to private companies that invest in offshore wind; and loan guarantees, which promise to pay back banks who lend out money to offshore wind companies in the event that their projects fail.

Affirmative Advantages

1. Global warming – the affirmative argues that global warming is happening now and will cause a variety of catastrophic impacts. Offshore wind can resolve global warming by providing massive amounts of clean electricity that displaces coal and natural gas.

2. Economy – the affirmative argues that economic growth is slow now due to a lack of jobs and a weak manufacturing industry. Offshore wind would create thousands of jobs and cause a massive expansion of manufacturing on the East Coast.

Negative answers to the Global Warming advantage

The negative can introduce a variety of arguments against the global warming advantage. First, the negative can argue that global warming has progressed too far and involves too many countries to be solvable. Second, they can argue that offshore wind doesn't produce very much energy. Third, they can argue that global warming isn't a serious concern because negative climate feedbacks will prevent it from getting out of hand. Finally, they can argue that wind energy will trade off with nuclear power, which is better equipped to solve global warming.

Negative answers to the Economy advantage

First, the negative can argue that offshore wind is expensive and will raise electricity prices, which would hurt manufacturing and therefore the economy. Second, they can argue that offshore wind will not result in job growth. Third, they can argue that incentives for offshore wind will harm the economy by trading off with more productive sectors. Fourth, they can argue that manufacturing is not key to the economy. Fifth, they can argue that the economy will be resilient to declines. Finally, they can argue that economic decline will not cause war.

Negative Answers to Solvency

First, the negative can argue that legal battles and other regulatory problems will stop offshore wind from being built. Second, they can argue that offshore wind hasn't worked in other countries, and therefore is unlikely to work here. Finally, they can argue that technological problems with offshore wind will prevent it from being successful.

Key Terms

Loan guarantees – in order to get money to build offshore wind, companies will try to get loans from banks. Banks may be reluctant to issue these loans, however, because they're concerned that companies may not be able to pay them back. Loan guarantees are a government policy that promises to pay banks back if the wind company is unable to pay back their loan.

Feedbacks – these refer to the factors that effect whether global warming becomes more or less intense as time goes on. For instance, one factor that affects climate is the reflection of light off the Arctic ice caps, an effect which causes overall cooling of the Earth's atmosphere. As global warming melts the ice caps, less light is reflected back into outer space, and the Earth warms even more: as a result, the melting of the ice caps is referred to as a “positive feedback.”

On the other hand, some feedbacks can be negative. Some people argue that, as the Earth warms, clouds will change to reflect more light into the atmosphere. If this is true, it would cause a cooling effect that offsets the warming effect: or, a “negative feedback.”

Climate mitigation – although global warming may be too late to stop altogether, many people argue that there's still time to reduce its severity by implementing renewable technologies quickly. This is called “climate mitigation.”

# Economy Advantage

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### 1NC – Economy Advantage

#### Offshore wind will raise electricity prices

Harvey, 13 (Fiona Harvey, environment correspondent, The Guardian [January 13, 2013, “Plan to link offshore windfarms to grid could cost £17bn,” http://www.guardian.co.uk/environment/2013/jan/14/linking-offshore-wind-farms-to-grid])

**The government's plans to bring more offshore wind power on to the grid are flawed and could lead to higher electricity prices for consumers,** an influential committee of MPs has warned.

**Offshore windfarms require heavy-duty transmission infrastructure to carry the power to land, and the provision of the cables needed has been a serious obstacle to the growth of the wind industry**, as windfarms both on and offshore have had to wait for long periods to be connected.

Under the government's current system, a licensing system allows National Grid and other providers to construct the transmission lines. But the public accounts committee has said that savings for consumers could be illusory, because of the way the licensing system has been designed.

Ofgem said it was consulting on possible changes to the system that would solve the problems the MPs had identified in the first few projects.

Margaret Hodge, chair of the public accounts committee, said: **"Not only is it unlikely that this new licensing system for bringing electricity from offshore windfarms on to the national grid will deliver any savings for consumers, it could well lead to higher prices. Indeed the terms of the licences appear to have been designed almost entirely to attract investors at the expense of securing a good deal for consumers."**

#### Low electricity prices are crucial to re-shoring of manufacturing – solves the manufacturing industry

Perry, 12 [July 31, 2012, Mark, Prof of Economics @ Univ. of Michigan, “America's Energy Jackpot: Industrial Natural Gas Prices Fall to the Lowest Level in Recent History,” http://mjperry.blogspot.com/2012/07/americas-energy-jackpot-industrial.html]

Building petrochemical plants could suddenly become attractive in the United States. **Manufacturers will “reshore” production to take advantage of low** natural gas and **electricity prices. Energy costs will be lower for a long time, giving a competitive advantage to companies that invest in America, and also helping American consumers who get hit hard when energy prices spike.** After years of bad economic news, the natural gas windfall is very good news. Let's make the most of it.” **The falling natural gas prices also make the predictions in this December 2011 study** by PriceWaterhouseCoopers, **“Shale gas: A renaissance in US manufacturing?”all the more likely: U.S. manufacturing companies** (chemicals, metals and industrial) **could employ approximately one million more workers by 2025 because of abundant, low-priced natural gas. Lower feedstock and energy cost could help U.S. manufacturers reduce natural gas expenses by as much as $11.6 billion annually** through 2025. MP: As I have emphasized lately, America's ongoing shale-based energy revolution is one of the real bright spots in an otherwise somewhat gloomy economy, and provides one of the best reasons to be bullish about America's future. The shale revolution is creating thousands of well-paying, shovel-ready jobs in Texas, North Dakota and Ohio, and thousands of indirect jobs in industries that support the shale boom (sand, drilling equipment, transportation, infrastructure, steel pipe, restaurants, etc.). In addition, the abundant shale gas is driving down energy prices for industrial, commercial, residential and electricity-generating users, which frees up billions of dollars that can be spent on other goods and services throughout the economy, providing an energy-based stimulus to the economy. Cheap natural gas is also translating into cheaper electricity rates, as low-cost natural gas displaces coal. Further, **cheap and abundant natural gas is sparking a manufacturing renaissance in energy-intensive industries like chemicals, fertilizers, and steel. And unlike renewable energies like solar and wind, the natural gas boom is happening without any taxpayer-funded grants, subsidies, credits and loans.** Finally, we get an environmental bonus of lower CO2 emissions as natural gas replaces coal for electricity generation. Sure seems like a win, win, win, win situation to me.

#### Offshore wind won't create jobs – estimates are biased and lack credibility

Linowes, 12 (Executive Director of the Industrial Wind Action Group, “Wind Energy Jobs: Are the Numbers Pulled from Thin Air,” http://www.dailyenergyreport.com/2012/07/wind-energy-jobs-are-the-numbers-pulled-from-thin-air/)

**The American Wind Energy Association** has made extending the Production Tax Credit (‘PTC’) its primary focus this year. Documents available on the trade group’s website show that about $4 million of its 2012 budget ($30 million) was directed toward securing extension of the PTC. With job growth the number one political issue in the United States, AWEA’s strategic plan **calls for rebranding of the wind industry as an economic engine that will produce steady job growth, particularly in the manufacturing sector. The problem** for AWEA **is that the industry’s own record on job growth lacks credibility.** Accurate **information available in the public suggests the industry has inflated its overall job numbers.** Section 1603 and Jobs Seventy-five percent of the Section 1603 largesse was lavished on big wind, yet**, despite billions in public funding, the wind sector experienced a net loss of 10,000 direct and indirect jobs in 2010** bringing AWEA’s reported total to 75,000 jobs[1]. In April, **NREL released its estimates of direct and indirect jobs created** by projects receiving 1603 funding. The agency relied on the JEDI model[2] to estimate gross jobs, earnings, and economic output supported through the construction and operation of solar photovoltaic (PV) and large wind projects. **But an investigation by the House Subcommittee on Oversight and Investigations rightly objected to NREL’s conclusions. The Subcommittee found that NREL overstated the number of jobs created** under 1603, **that it failed to report on the more important net job creation, and ignored potential jobs that would be created given alternative spending** of Federal funds. **The key sticking point was that NREL did not validate its models using actual data from completed projects.** The Subcommittee concluded that **models** used to estimate job creation **were no substitute for actual data** and added: “The Section 1603 grant program was sold to the American people as a necessary stimulus jobs program, and yet, the Treasury and Energy Departments do not have the numbers to back up the Obama Administration’s claims of its success in creating jobs.” The problem with JEDI A footnote in NREL’s report provides a useful explanation for why the JEDI model offers no meaningful information when assessing the employment benefits of government subsidies. The footnote states: As a gross analysis, this **analysis does not include impacts from displaced energy or associated jobs, earnings, and output related to existing or planned energy generation resources** (e.g., jobs lost in the operation of natural gas or coal plants due to the need for less electricity production from these plants, given increased generation from wind) or increases or decreases in jobs related to changes in electric utility revenues and consumer energy bills, among other impacts. **In other words, the model is one-sided, only considering the benefit side** of a cost-benefit comparison and ignores everything else. Validating AWEA Job Data **So what data do we have on wind industry jobs? Not much.** Apparently, **AWEA is the only source of nationwide employment statistics in the United States for wind-related jobs**. Of the purported 75,000 direct and indirect jobs, the majority (around 60%) work in finance and consulting services, contracting and engineering services, and transportation and logistics. Twenty thousand are employed in wind-related manufacturing with the remaining jobs tied to construction and O&M. But validating this information is not possible since no industry codes exist that isolate wind power establishments or wind turbine and wind components establishments. The North American Industry Classification System (NAICS) bundles wind-related manufacturers under the same code as the “Turbine and Turbine Generator Set Units” manufacturing industry (NAICS 333611), which includes “establishments primarily engaged in manufacturing turbines (except aircraft) and complete turbine generator set units, such as steam, hydraulic, gas, and wind.” At the end of 2010, the Bureau of Labor Statistics reported 26,800 total jobs in this industry. It’s not credible that AWEA’s estimated manufacturing jobs could represent the vast majority of employment under the NAICS 333611 classification.[3] Navigant’s Magic In December, Navigant Consulting, Inc. released a study commissioned by AWEA that analyzed the impact of the PTC on job growth in the wind industry. Navigant considered two scenarios, one where the PTC is extended for 4 years (2013-2016); the other where the PTC expires at the end of this year. The study found that extension of the PTC would provide a stable economic environment and allow the wind industry to grow to nearly 100,000 American jobs over four years, including a jump to 46,000 manufacturing positions. Expiration of the PTC showed a loss of 37,000 jobs. The message to Congress was clear: extend the PTC or you will be blamed for American jobs being lost. But statements by AWEA prompted us to look at the numbers more closely. In May, **AWEA’s Denise Bode told Windpower Monthly that “Of the estimated 75,000 wind jobs, at least 30,000 are manufacturing jobs”.** Somehow, wind manufacturing jobs jumped by 10,000 after Navigant released its report. Where did the additional jobs come from? **As it turns out, Navigant tabulated direct and indirect jobs but also quietly added INDUCED jobs — those jobs created when the overall level of spending in an economy rises** due to workers newly receiving incomes. **Addition of ‘induced employment’ is a radical departure from job figures previously provided by AWEA**. All prior reports, as well as the newer NREL study, only looked at direct and indirect jobs. We could find no documentation that explained this change nor was the change footnoted in the Navigant study. In looking at the Navigant numbers, it appears the wind industry currently only provides 58,000 direct and indirect jobs, not 75,000! A four-year extension of the PTC could result in a possible 70,000 direct and indirect jobs — 5,000 less than the number touted by AWEA before it started including induced jobs. Conclusion **The change in job counts raises serious credibility issues about the industry’s employment strength. But the absolute numbers tell only a piece of the story.** Since Navigant’s study is based on JEDI, **the job figures represent gross numbers and do not consider them in the context of the larger economy.** In that sense, Navigant’s findings, like NREL’s study, tell us nothing about the true impact of the PTC. But one thing does appear to be true: **AWEA’s job figures, dating back to least 2009, may be nothing more than figures pulled from thin air**.

#### Incentives for wind fail – they waste money and trade off with investment in more important economic areas

Hanson, 14 (Christine Harbin, Federal Issues Campaign Manager for Americans for Prosperity, a conservative political advocacy group. Published in Forbes on June 18, 2014. http://www.forbes.com/sites/realspin/2014/06/18/support-for-wind-subsidies-divides-republicans/)

I**n arguing that that tax credits are needed to boost employment in the wind industry, proponents overlook what the rest of the economy gives up in exchange for them.** In reality **the PTC** is a net jobs loser—it **distracts labor and capital away from more efficient areas in the economy and slows over all growth. Wind turbine makers may be able to plump up their payrolls**—just as any tax handout will boost employment in a targeted industry—**but the rest of the economy suffers as a result. Any boost in employment among wind turbine makers is inherently temporary.**

Compared to other forms of electricity generation, **wind power is far from cost competitive. The wind PTC is an outrageously large subsidy**, leading to giant disruptions in the energy market. At $23 per megawatt-hour, the PTC is worth half (and sometimes even more) of the entire wholesale price of electricity in many parts of the country. In fact, the PTC is so lavish and anti-cost-competitive that wind power producers often bid negative prices into electrical grid, just so they can collect the subsidy. They literally pay utilities to take their electricity.

Lawmakers should oppose resurrecting this tax break for wind energy because it’s costly, and increasingly so—the PTC cost $12 billion in 2014, up from a historical average of $5 billion per year.

In practice, targeted subsidies are a tried-and-terrible way to develop new energy sources, Under President Obama’s direction, **the federal government has tried to prop up its favorite energy sources with targeted subsidies—tax credits, grants, loan guarantees**, state-based mandates, etc.—**with little to show besides slower economic growth. Too many of these pet projects have gone bankrupt and belly-up, sticking taxpayers with the bill, and failing to get the U.S. any closer to its energy goals.**

Even Warren Buffett readily admits that wind energy is a terrible investment—“[O]n wind energy, we get a tax credit if we build a lot of wind farms. That’s the only reason to build them. They don’t make sense without the tax credit.”

At its core, the wind PTC is no different than these green energy boondoggles like Solyndra and its successors. It represents exactly the kind of government meddling in the economy that Republicans campaign against. Republicans in particular should live up to their stated principles of free markets and level playing fields by opposing extending the PTC. If the wind industry were truly an American success story, as its supporters assert, then it wouldn’t remain woefully dependent on tax credits and purchase mandates, as it has for over 20 years.

As they consider tax extender legislation this summer, **lawmakers on both sides of the aisle should ignore calls from special interests to resurrect expired tax incentives. Their constituents didn’t send them to Washington to enact policies that cost jobs, distort the energy market, drive up energy bills—but by extending the PTC, that’s precisely what they’re poised to do.** American energy consumers would be much better off if U.S. energy policy were a portfolio of energies that are strong and profitable independent of government subsidy, not those that rely on a leg-up from government.

#### Manufacturing is no longer key to the economy – the U.S. has transitioned to an ideas economy

Hassett, 10 (Kevin, director of economic-policy studies at the American Enterprise Institute, “Obama's Obsession Drives Progress in Reverse: Kevin Hassett,” 8-15-10, http://www.bloomberg.com/news/2010-08-16/obama-s-obsession-drives-progress-in-reverse-commentary-by-kevin-hassett.html)

**Manufacturing has been on a more-or-less-steady decline as** a share of national output for decades, **part of the natural evolution of the U.S. economy. It’s time politicians stop calling this a national crisis**. Lots of firms went bankrupt during the recession without the federal government sweeping in to save them. Big manufacturing firms had to be rescued because of their symbolic power. Massive government intervention, it seems, is advisable to save the auto industry because manufacturing output is somehow more valuable than other types of output. Like the rest of Obama’s economic policy, the foundation for this idea is nonexistent. Small wonder his economists are quitting. Plan Power Later in his talk at GM, Obama pledged “to insist that management, workers, creditors, suppliers, dealers, shareholders, everybody get together and come up with a plan so that we can start building for the future.” I guess that means the problem with the American auto industry was not that the **automakers were swamped by insanely high labor costs after years of unwise concessions to unions;** the problem was that we never had a presidential orator brilliant enough to urge everyone to get together and craft a plan to save manufacturing. Truth is, we already know Obama’s plan: to tax you to keep the rust-laden, union-heavy industrial sector afloat. Sadly, similar thinking seems to be catching like a plague. Two days before the president’s speech, the House voted 379 to 38 to pass H.R. 4692, which recommends establishing a presidential task force to create a National Manufacturing Strategy to revive U.S. industries. Special Treatment You might ask, what’s the harm in yet another government study? Here’s what. One provision in the bill would require the president to include, in each year’s federal budget, information on how the spending plan advances the manufacturing strategy. That would give manufacturing special treatment in every budget. **Manufacturing has been declining as a share of U.S. gross domestic product for some time,** from about 28 percent in 1950 to about 11 percent in 2009. **Any economist can tell you that this decline is not necessarily a cause for concern. Over the past few decades, our economy has transformed dramatically, and the importance of innovation has increased sharply. A 2006 study by the Federal Reserve found that investment in intangible capital is more important today, in the aggregate, than investment in tangible capital. We have become an ideas economy. That’s not a problem. It’s economic evolution, a natural and positive force.** The agricultural sector has seen a similar decline in the last 60 years, falling to 1 percent of GDP from roughly 7 percent.

#### Economic decline doesn’t cause war --- recent statistical evidence proves

Drezner, 12 --- The Fletcher School of Law and Diplomacy at Tufts University (October 2012, Daniel W., “THE IRONY OF GLOBAL ECONOMIC GOVERNANCE: THE SYSTEM WORKED,”

[www.globaleconomicgovernance.org/wp-content/uploads/IR-Colloquium-MT12-Week-5\_The-Irony-of-Global-Economic-Governance.pdf](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

#### The U.S. and global economy are resilient – new macroeconomic policies absorb shocks

Behravesh, 6 (Nariman, most accurate economist tracked by USA Today and chief global economist and executive vice president for Global Insight, Newsweek, “The Great Shock Absorber; Good macroeconomic policies and improved microeconomic flexibility have strengthened the global economy's 'immune system.'” 10-15-2006, [www.newsweek.com/id/47483](http://www.newsweek.com/id/47483))

The U.S. and global economies were able to withstand three body blows in 2005--one of the worst tsunamis on record (which struck at the very end of 2004), one of the worst hurricanes on record and the highest energy prices after Hurricane Katrina--**without missing a beat.** This resilience was especially remarkable in the case of the United States, which since 2000 has been able to shrug off the biggest stock-market drop since the 1930s, a major terrorist attack, corporate scandals and war.

Does this mean that recessions are a relic of the past? No, but recent events do suggest that the global economy's "immune system" is now strong enough to absorb shocks that 25 years ago would probably have triggered a downturn. In fact, over the past two decades, recessions have not disappeared, but have become considerably milder in many parts of the world. What explains this enhanced recession resistance? The answer: a combination of good macroeconomic policies and improved microeconomic flexibility.

Since the mid-1980s, central banks worldwide have had great success in taming inflation. This has meant that long-term interest rates are at levels not seen in more than 40 years. A low-inflation and low-interest-rate environment is especially conducive to sustained, robust growth. Moreover, central bankers have avoided some of the policy mistakes of the earlier oil shocks (in the mid-1970s and early 1980s), during which they typically did too much too late, and exacerbated the ensuing recessions. Even more important, in recent years the Fed has been particularly adept at crisis management, aggressively cutting interest rates in response to stock-market crashes, terrorist attacks and weakness in the economy.

The benign inflationary picture has also benefited from increasing competitive pressures, both worldwide (thanks to globalization and the rise of Asia as a manufacturing juggernaut) and domestically (thanks to technology and deregulation). Since the late 1970s, the United States, the United Kingdom and a handful of other countries have been especially aggressive in deregulating their financial and industrial sectors. This has greatly increased the flexibility of their economies and reduced their vulnerability to inflationary shocks. Looking ahead, what all this means is that a global or U.S. recession will likely be avoided in 2006, and probably in 2007 as well. Whether the current expansion will be able to break the record set in the 1990s for longevity will depend on the ability of central banks to keep the inflation dragon at bay and to avoid policy mistakes. The prospects look good. Inflation is likely to remain a low-level threat for some time, and Ben Bernanke, the incoming chairman of the Federal Reserve Board, spent much of his academic career studying the past mistakes of the Fed and has vowed not to repeat them.

At the same time, no single shock will likely be big enough to derail the expansion. What if oil prices rise to $80 or $90 a barrel? Most estimates suggest that growth would be cut by about 1 percent--not good, but no recession. What if U.S. house prices fall by 5 percent in 2006 (an extreme assumption, given that house prices haven't fallen nationally in any given year during the past four decades)? Economic growth would slow by about 0.5 percent to 1 percent. What about another terrorist attack? Here the scenarios can be pretty scary, but an attack on the order of 9/11 or the Madrid or London bombings would probably have an even smaller impact on overall GDP growth.

So what would it take to trigger a recession in the U.S. or world economies over the next couple of years? Two or more big shocks occurring more or less simultaneously. Global Insight recently ran a scenario showing that a world recession could happen if the following combination of events were to take place: oil prices above $100 per barrel, inflation and interest rates running 3 percentage points above current levels and a 10 percent drop in home prices across many industrial nations (e.g., the United States, the United Kingdom, Spain, Australia, Sweden). The likely timing of such a recession would be 2007. However, given the extremeness of these assumptions, the probability of such a scenario is less than 20 percent.

The good news is that the chances of a recession occurring in the next couple of years are low. The not-so-good news is that assertions about recessions being relegated to history's trash heap are still premature.

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### Extend: “Wind Raises Electricity Prices”

#### Offshore wind will be more expensive than expected

Hands, 14 (Guy, chairman and chief executive of Terra Firma Capital Partners. “The wrong renewables: Why relying on offshore wind will prove a costly error” 7-14-14. http://www.cityam.com/1405359355/wrong-renewables-why-relying-offshore-wind-will-prove-costly-error)

**The Department of Energy has set a target of 18GW of installed offshore wind capacity by 2020. But only 3.7GW is operational today**, with 1.4GW under construction and another 2.4GW having received planning consent. Even if all these projects are generating power by 2020, which is a big if, we won’t be halfway to the 20 per cent target. The only way this shortfall could be met is if every offshore wind project currently in the early planning stages were to be developed, receive consent, and be operational within the next six years. Given the inevitable planning delays, difficulties in raising capital and constraints in the supply chain, this seems impossible.

But **even if** these **obstacles were overcome, the power produced would still be at a considerably higher price than that generated by solar and, particularly, onshore wind. While the price of offshore wind power has consistently turned out to be higher than forecast, the cost of onshore is substantially lower than expected** and is now comparable to gas turbine electricity production.

In fact, the renewable sector finds itself in a remarkable position – attacked for providing electricity which needs too much government support, at the same time as **decisions are made to prevent generation from the renewable sources which can provide it at the lowest price**. The NAO report exposing **over-generous subsidies to a handful of giant off-shore wind farms** and biomass plants – **which** it said **would unnecessarily add £16 to every household’s annual energy bill – highlights the irrationality and cost to consumers of this approach.**

#### The only current offshore wind project in the U.S. is three times more expensive than natural gas

National Geographic, 14 (“First U.S. Offshore Wind Farm Wins Federal Funds, Courtroom Fights” 7-17-14. http://energyblog.nationalgeographic.com/2014/07/17/first-u-s-offshore-wind-farm-wins-federal-funds-courtroom-fights/)

In recent years **much Cape Wind opposition has centered on the higher costs consumers will be asked to pay for electricity generated offshore. Utilities NSTAR and National Grid have contracted to buy Cape Wind power at 19 cents per kilowatt hour, with a 3.5 percent increase each year. Those contracts cost considerably more than land-based power,** but are in line with the U.S. Energy Information Administration estimates that on a per-megawatt-hour basis, **new offshore wind energy will cost 2.6 times more than onshore wind power and 3.3 times more than advanced natural gas plants.**

The high costs don’t sit well with those opposing Cape Wind.

“In 2010, **Cape Wind signed exorbitant price contracts with the Massachusetts utilities and it became very clear that this power wasn’t cheap at all**,” Alliance President and chief executive Audra Parker told National Geographic last year. “At that point, opposition started to increase across Massachusetts among people and business concerned with the possibility of rising electric bills.”

### Extend: “No Job Growth”

#### Government job creation is a myth – new jobs are offset by job losses in other sectors

Green, 09 (Resident fellow at AEI. Kenneth, “Green Illusions”, 2/25, http://aei.org/publications/filter.all,pubID.29443/pub\_detail.asp)

Let's review the reasons why governments cannot create jobs, and why labelling them "green" doesn't change the basic dynamics. Let's start with **the fallacy that governments can create jobs.** This fallacy **was exploded all the way back in 1845** by a French politician and political economist named Frédéric Bastiat. Bastiat pointed out that **the only way governments can create jobs is by first obliterating other jobs. Sometimes, they obliterate other jobs by diverting taxpayer money away from the economic uses the taxpayer would have pursued if they had kept their taxes. Other times, they obliterate jobs by imposing regulations that kill off one industry in favour of another.** In still other situations, they impose mandates, such as using recycled paper to create an artificial market for recycled paper which reduce jobs in fresh-paper production. In the green energy case, they are doing all of the above: **Taxpayer dollars are being used to subsidize the renewable energy sector;** damaging regulations are being implemented on the traditional fossil fuel sector, and mandates for the use of renewable energy are being issued, **creating a false market in wind power at the expense of fossil fuel and nuclear power.** Governments also invariably siphon off a good part of the money for "administration," creating civil service jobs that pay comparatively higher wages than the private sector for similar activity. **Inevitably, government efforts to create jobs cost the economy jobs and, adding insult to injury, divert limited resources to inefficient uses, causing economic underperformance.**

### Extend: “Manufacturing Not Key”

#### The manufacturing industry is strong and will stay strong

Deener, 13 (Will, business columnist for the Dallas Morning News. “Manufacturing sector making a comeback” 12-8-13. http://www.dallasnews.com/business/columnists/will-deener/20131208-manufacturing-sector-making-a-comeback.ece)

Throughout this bull market, social media stocks, the big online retailers like Amazon.com and health care companies seem to have garnered most of the attention in the financial press. As impressive as their performances have been, **one sector has quietly flown under the radar this year and now ranks among the leaders in the Standard & Poor’s 500 index. The industrials — manufacturers of stuff — rank third** among the 10 S&P sectors this year with a 32.9 percent stock price gallop. The health care sector, led primarily by big pharmaceuticals like Pfizer Inc., has posted the best performance so far this year at 37.9 percent, followed by consumer discretionary stocks, such as Amazon and McDonald’s Corp., with a 36.7 percent gain. The industrial sector is in hot pursuit, though, pushed higher by aircraft manufacturer The Boeing Co., United Technologies Corp. and the Irving-based design and engineering company Fluor Corp. Boeing shares are up 79 percent this year; United Technology and Fluor both gained more than 30 percent. **The sterling performance of this sector is indicative of what some have called a manufacturing renaissance in the United States over the past two to three years. U.S. companies are relocating some of their overseas operations in China, Southeast Asia and Mexico to the states, while other countries are opening factories here.** This is welcome news because much of the domestic manufacturing sector was obliterated in the period from about 2000 to 2010. During this time, the number of employees in this sector fell from about 17 million to about 11 million, according to the U.S. Bureau of Labor Statistics. The percentage of manufacturing employees in the workforce dropped from 30 percent in 1960 to below 10 percent. But **U.S. manufacturing has been making a comeback, adding some 500,000 jobs over the past two years.** Total manufacturing employment of about 12 million workers remains well below its peak of almost 20 million in 1980, but at least the sector is adding jobs. “Everyone loves a comeback story, and the revival of U.S. manufacturing is one worth hearing,” wrote equity analyst Christian Mayes in a recent report for Edward Jones. “**The U.S. is once again becoming more competitive, attracting both U.S. and foreign investments in manufacturing.”** And apparently t**his is not a short-term phenomenon.** It is estimated that **increased exports and production work “re-shored” from China could create up to 5 million U.S. manufacturing jobs,** according to a report by The Boston Consulting Group. A **confluence of factors is responsible for the re-emergence of manufacturing, but at the top of almost everyone’s list is cheaper energy — specifically natural gas — and cheaper labor costs,** both of which lead to lower manufacturing costs. Over the next five years, manufacturing costs in the United States will be 8 percent to 18 percent cheaper than in the major export countries of Germany, Japan, Italy and the United Kingdom, according to the consultant’s report. **“The United States is steadily becoming one of the lowest-cost countries for manufacturing in the developed world,”** the report said. W**ages in other countries, particularly China, have risen dramatically, while U.S. wages have been stagnant** for years. This has narrowed the low-wage advantage that so many of the emerging markets had over the United States. Additionally, **U.S. manufacturing plants are simply more productive and in closer proximity to customers than those overseas**. That also helps to lower costs.

### Extend: “Economic Decline doesn’t cause war”

#### Economic crisis won’t cause war

Barnett 9—senior managing director of Enterra Solutions LLC (Thomas, The New Rules: Security Remains Stable Amid Financial Crisis, 25 August 2009, http://www.aprodex.com/the-new-rules--security-remains-stable-amid-financial-crisis-398-bl.aspx)

When the global financial crisis struck roughly a year ago, the blogosphere was ablaze with all sorts of scary predictions of, and commentary regarding, ensuing conflict and wars -- a rerun of the Great Depression leading to world war, as it were. Now, as global economic news brightens and recovery -- surprisingly led by China and emerging markets -- is the talk of the day, it's interesting to look back over the past year and realize how globalization's first truly worldwide recession has had virtually no impact whatsoever on the international security landscape. None of the more than three-dozen ongoing conflicts listed by GlobalSecurity.org can be clearly attributed to the global recession. Indeed, the last new entry (civil conflict between Hamas and Fatah in the Palestine) predates the economic crisis by a year, and three quarters of the chronic struggles began in the last century. Ditto for the 15 low-intensity conflicts listed by Wikipedia (where the latest entry is the Mexican "drug war" begun in 2006). Certainly, the Russia-Georgia conflict last August was specifically timed, but by most accounts the opening ceremony of the Beijing Olympics was the most important external trigger (followed by the U.S. presidential campaign) for that sudden spike in an almost two-decade long struggle between Georgia and its two breakaway regions. Looking over the various databases, then, we see a most familiar picture: the usual mix of civil conflicts, insurgencies, and liberation-themed terrorist movements. Besides the recent Russia-Georgia dust-up, the only two potential state-on-state wars (North v. South Korea, Israel v. Iran) are both tied to one side acquiring a nuclear weapon capacity -- a process wholly unrelated to global economic trends. And with the United States effectively tied down by its two ongoing major interventions (Iraq and Afghanistan-bleeding-into-Pakistan), our involvement elsewhere around the planet has been quite modest, both leading up to and following the onset of the economic crisis: e.g., the usual counter-drug efforts in Latin America, the usual military exercises with allies across Asia, mixing it up with pirates off Somalia's coast). Everywhere else we find serious instability we pretty much let it burn, occasionally pressing the Chinese -- unsuccessfully -- to do something. Our new Africa Command, for example, hasn't led us to anything beyond advising and training local forces. So, to sum up: •No significant uptick in mass violence or unrest (remember the smattering of urban riots last year in places like Greece, Moldova and Latvia?); •The usual frequency maintained in civil conflicts (in all the usual places); •Not a single state-on-state war directly caused (and no great-power-on-great-power crises even triggered); •No great improvement or disruption in great-power cooperation regarding the emergence of new nuclear powers (despite all that diplomacy); •A modest scaling back of international policing efforts by the system's acknowledged Leviathan power (inevitable given the strain); and •No serious efforts by any rising great power to challenge that Leviathan or supplant its role. (The worst things we can cite are Moscow's occasional deployments of strategic assets to the Western hemisphere and its weak efforts to outbid the United States on basing rights in Kyrgyzstan; but the best include China and India stepping up their aid and investments in Afghanistan and Iraq.) Sure, we've finally seen global defense spending surpass the previous world record set in the late 1980s, but even that's likely to wane given the stress on public budgets created by all this unprecedented "stimulus" spending. If anything, the friendly cooperation on such stimulus packaging was the most notable great-power dynamic caused by the crisis. Can we say that the world has suffered a distinct shift to political radicalism as a result of the economic crisis? Indeed, no. The world's major economies remain governed by center-left or center-right political factions that remain decidedly friendly to both markets and trade. In the short run, there were attempts across the board to insulate economies from immediate damage (in effect, as much protectionism as allowed under current trade rules), but there was no great slide into "trade wars." Instead, the World Trade Organization is functioning as it was designed to function, and regional efforts toward free-trade agreements have not slowed. Can we say Islamic radicalism was inflamed by the economic crisis? If it was, that shift was clearly overwhelmed by the Islamic world's growing disenchantment with the brutality displayed by violent extremist groups such as al-Qaida. And looking forward, austere economic times are just as likely to breed connecting evangelicalism as disconnecting fundamentalism. At the end of the day, the economic crisis did not prove to be sufficiently frightening to provoke major economies into establishing global regulatory schemes, even as it has sparked a spirited -- and much needed, as I argued last week -- discussion of the continuing viability of the U.S. dollar as the world's primary reserve currency. Naturally, plenty of experts and pundits have attached great significance to this debate, seeing in it the beginning of "economic warfare" and the like between "fading" America and "rising" China. And yet, in a world of globally integrated production chains and interconnected financial markets, such "diverging interests" hardly constitute signposts for wars up ahead. Frankly, I don't welcome a world in which America's fiscal profligacy goes undisciplined, so bring it on -- please! Add it all up and it's fair to say that this global financial crisis has proven the great resilience of America's post-World War II international liberal trade order.

#### Economic decline doesn’t cause war

Ferguson 6 (Niall, Professor of History – Harvard University, Foreign Affairs, 85(5), September / October, Lexis)

Nor can economic crises explain the bloodshed. What may be the most familiar causal chain in modern historiography links the Great Depression to the rise of fascism and the outbreak of World War II. But that simple story leaves too much out. Nazi Germany started the war in Europe only after its economy had recovered. Not all the countries affected by the Great Depression were taken over by fascist regimes, nor did all such regimes start wars of aggression. In fact, **no** general **relationship between economics and conflict is discernible** for the century as a whole. Some wars came after periods of growth, others were the causes rather than the consequences of economic catastrophe, and some **severe economic crises were not followed by wars**.

### Extend: “Economy Resilient”

#### Econ resilient, US isn’t key, and impact empirically denied

Lamy ’11(Pascal Lamy is the Director-General of the World Trade Organization. Lamy is Honorary President of Paris-based think tank Notre Europe. Lamy graduated from the prestigious Sciences Po Paris, from HEC and ÉNA, graduating second in his year of those specializing in economics. “System Upgrade” BY PASCAL LAMY | APRIL 18, 2011)

**The** bigger **test came with** the 2008-2009 Great Recession, **the first** truly **global recession** since World War II. When the international economy went into free fall, trade went right along with it. Production and supply are today thoroughly global in nature, with most manufactured products made from parts and materials imported from many other countries. These global value chains have a multiplier effect on trade statistics, which explains why, as the global economy contracted by 2 percent in 2009, trade volume shrank by more than 12 percent. This multiplier effect works the other way around as well: **Growth returned** to 4.6 percent and trade volume grew by a record 14.5 percent over the course of 2010. **Projections for trade** in 2011 **are** also **strong**, with WTO economists predicting that trade volume will rise 6.5 percent during the current year. This sharp rebound in trade has proved two essential things: **Markets stayed open despite ever-stronger pressures** to close them, and trade is an indispensible tool for economic recovery, particularly for developing countries, which are more dependent on trade. Shortly after the crisis broke out, we in the WTO began to closely monitor the trade policy response of our member governments. Many were fearful that pressures to impose trade restrictions would prove too powerful for governments to resist. But this is not what happened. Instead, **the system of rules and disciplines**, agreed to over 60 years of negotiations, **held firm**. In **a series of reports** prepared for WTO members and the G-20, we found that **governments acted with great restraint**. At no time did the trade-restrictive measures imposed cover more than 2 percent of world imports. Moreover, the measures used -- anti-dumping duties, safeguards, and countervailing duties to offset export or production subsidies -- were those which, in the right circumstances, are permissible under WTO rules. I am not suggesting that every safeguard measure or countervailing duty imposed during those difficult days was in compliance with WTO rules, but responses to trade pressures were generally undertaken within an internationally agreed-upon framework. Countries by and large resisted overtly noncompliant measures, such as breaking legally binding tariff ceilings or imposing import bans or quotas. As **markets stayed open, trade flows began to shift**, **and countries** that shrugged off the impact of the crisis and **continued to grow** -- **notably China, India, and Brazil** -- **became ever-more attractive markets for countries that were struggling**, **including** those in Europe and **North America**. Trade has been a powerful engine for growth in the developing world, a fact reflected in the far greater trade-to-GDP ratios we see there. In 2010, developing countries' share of world trade expanded to a record 45 percent, and this trend looks set to continue. Decisions made in Brasilia, Beijing, and New Delhi to open their respective economies to trade have been instrumental in enabling these countries to lift hundreds of millions of people out of poverty.

# Warming Advantage

## \*\*\*1NC

### 1NC – Warming

#### It's too late to stop global warming – too many barriers

Spaeth, 12 (Ryu, deputy editor at The Week. “Why it's probably too late to roll back global warming” 12-5-12. http://theweek.com/article/index/237392/why-its-probably-too-late-to-roll-back-global-warming)

**Two degrees Celsius. According to scientists, that's the rise in global temperature, measured against pre-industrial times, that could spark some of the most catastrophic effects of global warming. Preventing the two-degree bump has been the goal of every international treaty** designed to reduce greenhouse gas emissions, including a new one currently being hammered out at a United Nations summit in Doha, Qatar. **But a new study** published by the journal Nature Climate Change s**hows that it's incredibly unlikely that global warming can be limited to two degrees.** According to the study, the world in 2011 "pumped nearly 38.2 billion tons of carbon dioxide into the air from the burning of fossil fuels such as coal and oil," says Seth Borenstein at The Associated Press: The total amounts to more than 2.4 million pounds (1.1 million kilograms) of carbon dioxide released into the air every second. **Because emissions of the key greenhouse gas have been rising steadily and most carbon stays in the air for a century, it is not just unlikely but "rather optimistic" to think that the world can limit future temperature increases to 2 degrees Celsius** (3.6 degrees Fahrenheit), said the study's lead author, Glen Peters at the Center for International Climate and Environmental Research in Oslo, Norway. **What happens when the two-degree threshold is crossed? Most notably, that's when the polar ice caps will begin to melt**, leading to a dangerous rise in sea levels. Furthermore, the world's hottest regions will be unable to grow food, setting the stage for mass hunger and global food inflation. The rise in temperature would also likely exacerbate or cause extreme weather events, such as hurricanes and droughts.  **There is a very small chance that the world could pull back from the brink.** The U.N. could still limit warming to two degrees if it adopts **a "radical plan,"** says Peters' group. According to a PricewaterhouseCoopers study, such a plan **would entail cutting carbon emissions "by 5.1 percent every year** from now to 2050, essentially slamming the breaks on growth starting right now," says Coral Davenport at The National Journal, "and keeping the freeze on for 37 years." **However, the U.N. has set a deadline of ratifying a new treaty by 2015, and implementing it by 2020, which means the world is already eight years behind that pace. There are still major disagreements between the U.S. and China over whether the developed world, which industrialized first, should bear the bulk of the cost of reducing carbon emissions. And there is, of course, a large contingent of Americans who don't even believe climate change exists,** putting any treaty's ratification at risk. **Climate change is so politically toxic in America that Congress has prioritized the fiscal cliff over — no exaggeration — untold suffering and the end of the world** as we know it. **In other words, it isn't happening.** And if that's not bad enough, keep in mind that the two-degree mark is just the beginning, says Davenport: Michael Oppenheimer, a professor of geosciences and international affairs at Princeton University and a member of the Nobel Prize-winning U.N. Intergovernmental Panel on Climate Change, says that a **2-degree rise is not itself that point, but rather the beginning of irreversible changes.** "It starts to speed you toward a tipping point," he said. "It's driving toward a cliff at night with the headlights off. We don't know when we'll hit that cliff, but after 2 degrees, we're going faster, we have less control. After 3, 4, 5 degrees, you spiral out of control, you have even more irreversible change."

#### Aggressive offshore wind development would only cover 5% of U.S. electricity demand

Musial and Butterfield, 06 (National Renewable Energy Laboratory [W. Musial and S. Butterfield, Energy from Offshore Wind, May 1–4, 2006, http://www.nrel.gov/wind/pdfs/39450.pdf])

The economic potential resulting from this union requires some speculation, but for the purpose of illustrating the potential, a **moderately aggressive development scenario based on preliminary analysis performed internally by the U.S. Department of Energy, indicates a concerted research and development effort to develop offshore wind energy would result in 50 GW of installed offshore wind energy capacity in the United States in the next 20 years. This represents approximately 5% of the nation’s current electric generating capacity.** At current pricing, this represents approximately $100 billion of capital investment with at least half of this revenue going to offshore design and construction contracts. Further expansion of the offshore wind industry is expected to double this capacity to 100 GW over the subsequent 10-year period. This revenue will flow directly to companies that have experience with offshore construction and that will benefit from the growth of offshore wind.

#### Global warming isn't real – new studies prove clouds are a negative climate feedback

Michaels, 12 (Patrick, Director of the Center for the Study of Science at the Cato Institute and a senior fellow in research and economic development at George Mason University, published in Climate Research, Climatic Change, Geophysical Research Letters, Journal of Climate, Nature and Science, Ph.D. in ecological climatology from the University of Wisconsin at Madison. “An Unsettling Week For Global Warming's 'Settled Science'” 2-10-12. http://www.forbes.com/sites/patrickmichaels/2012/02/10/an-unsettling-week-for-global-warmings-settled-science/)

**People who claim that “the science is settled” on global warming have to be pretty unsettled by the science news in the last week.**  “Settled science”, of course, means that we are inevitably headed toward a disastrous warming of surface temperatures as forecast by some computer models, and we therefore need an international carbon tax or cap-and-trade system, pronto. **Settled science would know all of the important “forcings” and “feedbacks” in the climate system, such as the sensitivity of surface temperature to changes in carbon dioxide (a forcing) and the behavior of clouds, which could either enhance or counter warming (a feedback). Now it appears that cloud tops are lowering, a totally unforeseen cooling feedback on carbon dioxide-induced warming. Writing in Geophysical Research Letters,** **University of Auckland’s** Roger **Davies and** Matthew **Molloy conclude this could be a “significant measure of a negative cloud feedback to global warming”.** The average global cloud height is linked to the average global temperature—generally, the higher the average cloud height, the higher the average surface temperature, and vice versa. The tie-in is related to the height in the atmosphere from which clouds radiate infrared radiation to space. The higher up they are, the cooler they are, and they dissipate less radiation, which means the surface stays warmer. Problem is that there’s only ten years of data, and there was a pretty decent La Nina (that’s the cold side of El Nino) in the Pacific Ocean in 2008, which was clearly correlated with a decline in cloud top height. Davies and Molloy are therefore properly cautious with their conclusions, but nonetheless note that a comparison of the beginning and endpoints for their study, which minimizes the La Nina contribution, still showed a decline in cloud height. Who’d a thunk this one? **Based upon data from the paper, the cooling climate impact from the decrease in the average global cloud height more than offset the positive forcing from an increase in greenhouse gases from human activities in the last decade**. This is—yet another—explanation in the refereed literature to apologize for recent climate misbehavior. Others include changes in the sun, cruddy air from China, and a change in stratospheric water vapor. The last one is especially interesting because that, too, is a previously unknown forcing on climate, i.e. another bullet shot at “settled science”. Then there’s the new icing on the global warming cake. **Data from 2003 through 2010 from the Gravity Recovery and Climate Experiment (GRACE) satellite show virtually zero net melting from the massive Himalayan ice cap,** the world’s “third pole”. The UN, using an unrefereed publication from the World Wildlife Federation, erroneously forecast in its last climate compendium that it would be gone by 2035. In reality, it will last hundreds of years, and even longer if the current trends reflect how the ice cap reacts to warming. How could prominent glaciologists like Ohio State’s Lonnie Thompson, who isn’t shy about predicting glacial armageddon (and, who along with his wife, advises Al Gore on matters climatic), have missed this one? Simple—who wants to climb to the top of a Himalayan glacier? That can be close to the oxygen-starved “dead zone” where humans cannot linger. So most measurements have been made from the bottom. It shouldn’t surprise anyone that the top of these behemoths will expand in a warmer world, as the ocean evaporates more moisture which will surely precipitate as snow at higher elevations. In addition, the GRACE satellite found that total ice loss outside of Greenland and Antarctica was previously estimated 30% too high, another reinforcement of the “lukewarm” synthesis of climate change. After adding in the GRACE measurements for Greenland and Antarctica and median estimates for the “thermal expansion” of water, the current rate of sea-level rise is 8 inches per century. While that surely will rise before 2100, it’s only one inch more than what was observed last century. **What with the finding of yet another cooling feedback, no net melting (within the range of measurement error) in the Himalayan ice cap, and confirmation of a low rate of sea level rise, it’s been a bad week for climate hotheads.**

#### Increases in wind power trade off with nuclear power

Goreham, 14 (Steve, Executive Director of the Climate Science Coalition of America, an organization which advocates against the existence of human-caused global warming. Published on The Hill, U.S. Politics news organization, on April 25, 2014. Available at http://thehill.com/blogs/congress-blog/energy-environment/204194-us-power-grid-at-the-limit)

**Nuclear generating facilities are** also **under attack. Many of the 100 nuclear power plants that provided 20 percent of U.S. electricity for decades can no longer be operated profitably**. Exelon’s six nuclear power plants in Illinois have operated at a loss for the last six years and are now candidates for closure.

**What industry pays customers to take its product? The answer is the U.S. wind industry. Wind-generated electricity is typically bid in electrical wholesale markets at negative prices**. But how can wind systems operate at negative prices?

The answer is that the vast majority of **U.S. wind systems receive a federal production tax credit** (PTC) of up to 2.2 cents per kilowatt-hour for produced electricity. Some states add an addition credit, such as Iowa, which provides a corporate tax credit of 1.5 cents per kw-hr**. So wind operators can supply electricity at a pre-tax price of a negative 3 or 4 cents** per kw-hr **and still make an after-tax profit from subsidies, courtesy of the taxpayer.**

**As wind-generated electricity has grown, the frequency of negative electricity pricing has grown.** When demand is low, such as in the morning, wholesale electricity prices sometimes move negative. In the past, negative market prices have provided a signal to generating systems to reduce output.

But wind systems ignore the signal and continue to generate electricity to earn the PTC, distorting wholesale electricity markets. **Negative pricing by wind operators and low natural gas prices have pushed nuclear plants into operating losses. Yet, Congress is currently considering whether to again extend the destructive PTC subsidy.**

Capacity shortages are beginning to appear. A reserve margin deficit of two gigawatts is projected for the summer of 2016 for the Midcontinent Independent System Operator (MISO), serving the Northern Plains states. Reserve shortages are also projected for the Electric Reliability Council of Texas (ERCOT) by as early as this summer.

**The United States has the finest electricity system in the world**, with prices one-half those of Europe.

**But this system is under attack from foolish energy policies.** Coal-fired power plants are closing, unable to meet EPA environmental guidelines. **Nuclear plants are aging and beset by mounting losses, driven by negative pricing from subsidized wind systems**. Without a return to sensible energy policies, prepare for higher prices and electrical grid failures.

#### Only nuclear power solves warming

Caldeira et. al, 13 (Dr. Ken Caldeira, Senior Scientist, Department of Global Ecology, Carnegie Institution; Dr. Kerry Emanuel, Atmospheric Scientist, Massachusetts Institute of Technology; Dr. James Hansen, Climate Scientist, Columbia University Earth Institute; and Dr. Tom Wigley, Climate Scientist, University of East Anglia and the National Center for Atmospheric Research. Published November 3, 2013. http://dotearth.blogs.nytimes.com/2013/11/03/to-those-influencing-environmental-policy-but-opposed-to-nuclear-power/)

To those influencing environmental policy but opposed to nuclear power:

**As climate and energy scientists concerned with global climate change, we are writing to urge you to advocate the development and deployment of safer nuclear energy systems.** We appreciate your organization's concern about global warming, and your advocacy of renewable energy. But **continued opposition to nuclear power threatens humanity's ability to avoid dangerous climate change.**

We call on your organization to support the development and deployment of safer nuclear power systems as a practical means of addressing the climate change problem. **Global demand for energy is growing rapidly and must continue to grow to provide the needs of developing economies**. At the same time, the need to sharply reduce greenhouse gas emissions is becoming ever clearer. We can only increase energy supply while simultaneously reducing greenhouse gas emissions if new power plants turn away from using the atmosphere as a waste dump.

**Renewables like wind and solar and biomass will certainly play roles in a future energy economy, but those energy sources cannot scale up fast enough** to deliver cheap and reliable power at the scale the global economy requires. **While it may be theoretically possible to stabilize the climate without nuclear power, in the real world there is no credible path to climate stabilization that does not include a substantial role for nuclear power.**

We understand that today's nuclear plants are far from perfect. Fortunately, passive safety systems and other advances can make new plants much safer. And modern nuclear technology can reduce proliferation risks and solve the waste disposal problem by burning current waste and using fuel more efficiently. Innovation and economies of scale can make new power plants even cheaper than existing plants. Regardless of these advantages, nuclear needs to be encouraged based on its societal benefits.

**Quantitative analyses show that the risks associated with the expanded use of nuclear energy are orders of magnitude smaller than the risks associated with fossil fuels. No energy system is without downsides.** We ask only that energy system decisions be based on facts, and not on emotions and biases that do not apply to 21st century nuclear technology.

## \*\*\*2NC/1NR

### Extend: “Can't Solve”

#### Can't solve warming – there's no way to get crucial developing countries on board

Bloomberg News, 14 (“China to Struggle to Cut Carbon to Safe Levels: UN Study” 7-10-14. http://www.businessweek.com/news/2014-07-10/china-to-struggle-to-cut-carbon-to-safe-levels-un-study)

**China may struggle to cut carbon emissions to levels that prevent the worst effects of global warming, a United Nations study of 15 major emitters showed.**

The UN said **per-capita emissions from burning fossil fuels needs to fall to 1.6 tons in 2050 from 5.4 tons now** across the 15 nations **in order to stand even half a chance of capping the global average temperature rise at a safe level.**

It tasked research teams in each of the countries, including the U.S., India, Germany and Japan, to devise “deep decarbonization pathways” through to 2050. The Chinese team produced one that leads to 3.5 tons per capita, and the sum total of the 15 nations’ efforts totaled 2.4 tons, according to the study by the UN’s Sustainable Development Solutions Network. **The potential for China to cut its harmful emissions matter because the country is the world’s biggest emitter, after overtaking the U.S. in 2006. The two nations combined account for more than two-fifths of global emissions.**

“We know that **we are not on track, and time is not on our side**,” UN Secretary-General Ban Ki-moon said in a statement on July 8, when the report was released. “I expect countries to adopt different combinations according to their needs, resources and priorities. But **all countries need to embark on the same journey.**”

The pathways outlined by the 15 research teams involved **ramping up technologies such as nuclear and renewable power, carbon capture and storage, and electric vehicles.** They l**ed to an aggregate cut in annual emissions from energy of 45 percent**, falling to 12.3 gigatons (12.3 billion tons) in 2050 from 22.3 gigatons in 2010. Temperature Target

**Even so, that’s not enough** to keep the Earth on a pathway to cap the temperature rise since industrialization began to 2 degrees Celsius (3.6 degrees Fahrenheit), according to the study. That threshold has been agreed as a target by 194 nations involved in climate treaty talks and compares with the current trajectory which the UN predicts will lead to warming of at least 3.7 degrees Celsius.

The 15 countries account for 70 percent of total global greenhouse gas emissions. Cutting per-capita emissions to 1.6 tons by 2050 would yield a 50-percent chance of capping the temperature rise at 2 degrees, according to the UN.

The U.S. team charted four potential pathways, leading to emissions totaling 1.6 tons to 1.7 tons per capita in 2050. That compares with 17.7 tons in 2010. The researchers said it’s “technically feasible” to cut U.S. emissions by 85 percent between 1990 and 2050, while still growing the economy. China’s Challenge

In the Chinese scenario, coal use declined to 5 percent of the energy mix in 2050 from 39 percent in 2010, while hydro, renewables and nuclear increase their share of power generation to 41 percent. China’s industrial base, which manufactures goods for much of the world, was picked out as a challenge.

“Currently, 25 percent of energy is used for the production of export products in China,” the researchers wrote. “Given that adjustments of the structure of exports is not an easy task, manufacturing exports (and associated emissions) are expected to remain important in the long run.”

The U.K. pathway would drive emissions per capita down to 1.1 ton in 2050 from 7.9 tons in 2010, while the Japanese one would see greenhouse gas output fall to 1.9 ton from 8.8 tons. Chapters covering Germany, India and Brazil weren’t yet available. The other countries covered are Australia, Canada, France, Indonesia, Mexico, Russia, South Africa and South Korea. The study set the per-capita emissions number as a “benchmark but not as a target in a strict sense.” That’s because 194 nations locked in global climate treaty talks for two decades have squabbled over the fairest way to split the burden of cutting emissions.

**Industrialized nations have benefited from decades of higher emissions that helped them modernize -- something developing nations including China and India say they should be allowed to do too.** The countries aim to write a new global deal on climate change at a UN meeting in Paris in December 2015.

The UN said its analysis of the pathways remains “preliminary and incomplete.” It plans to issue a complete report before Ban hosts a climate change summit of world leaders in September in New York. It then plans to further refine its analysis and broaden the study to cover what is not yet technically feasible, preparing a wider report in 2015 for the French government, which will host the treaty talks.

### Extend: “Negative Feedbacks”

#### Climate feedbacks are net negative – climate models confuse cause and effect

ScienceDaily, 08 (Article Cites Roy W. Spencer, Recipient of NASA's Medal for Exceptional Scientific Achievement, and William D. Braswell, Nichols Research Corporation [Both of the Earth System Science Center, U of Alabama], 6/12/2008

(Spencer is also the U.S. Science Team leader for the Advanced Microwave Scanning Radiometer flying on NASA's Aqua satellite, Lead authors of “Potential Biases in Feedback Diagnosis from Observational Data: A Simple Model Demonstration” and quoted in an article on ScienceDaily titled “Has Global Warming Research Misinterpreted Cloud Behavior?”, http://www.sciencedaily.com/releases/2008/06/080611184722.htm)

**Climate experts agree that the seriousness of manmade global warming depends greatly upon how clouds in the climate system respond to the small warming tendency from** the extra **carbon dioxide mankind produces.** To figure that out, climate researchers usually examine natural, year-to-year fluctuations in clouds and temperature to estimate how clouds will respond to humanity¹s production of greenhouse gases. When **researchers** observe natural changes in clouds and temperature, they **have traditionally assumed that the temperature change caused the clouds to change, and not the other way around.** To the extent that the cloud changes actually cause temperature change, **this can ultimately lead to overestimates of how sensitive Earth's climate is to our greenhouse gas emissions. This seemingly simple mix-up between cause and effect is the basis of a new paper** that will appear in the "Journal of Climate." The paper¹s lead author, Dr. Roy W. Spencer, a principal research scientist at The University of Alabama in Huntsville, believes the work is the first step in demonstrating why climate models produce too much global warming. **Spencer and his co-author,** principal research scientist William (Danny) Braswell, **used a simple climate model to demonstrate that something as seemingly innocuous as daily random variations in cloud cover can cause year-to-year variation in ocean temperature that looks like -- but isn't -- "positive cloud feedback,**" a warmth-magnifying process that exists in all major climate models. **"Our paper is an important step toward validating a gut instinct that many meteorologists like myself have had over the years,"** said Spencer, **"that the climate system is dominated by stabilizing processes, rather than destabilizing processes -- that is, negative feedback rather than positive feedback.**" The paper doesn't disprove the theory that global warming is manmade. Instead, it offers an alternative explanation for what we see in the climate system which has the potential for greatly reducing estimates of mankind's impact on Earth's climate. "Since the cloud changes could conceivably be caused by known long-term modes of climate variability -- such as the Pacific Decadal Oscillation, or El Nino and La Nina -- some, or even most, of the global warming seen in the last century could simply be due to natural fluctuations in the climate system," Spencer said. While the paper's two peer reviewers, both climate model experts, agreed that the issue is a legitimate one, Spencer knows the new paper will be controversial, with some claiming that the impact of the mix-up between cause and effect will be small. "But we really won't know until much more work is done," Spencer said. "Unfortunately, so far we have been unable to figure out a way to separate cause and effect when observing natural climate variability. That's why most climate experts don't like to think in terms of causality, and instead just examine how clouds and temperature vary together. "Our work has convinced me that **cause and effect really do matter. If we get the causation wrong, it can greatly impact our interpretation of what nature has been trying to tell us.** Unfortunately, in the process it also makes the whole global warming problem much more difficult to figure out."

### Extend: “Nuclear Power Coming Now”

#### New EPA regulations will reinvigorate the nuclear power industry

Galluci, 14 (Maria, energy and environment reporter at the International Business Times. Published June 5, 2014. http://www.ibtimes.com/obama-carbon-plan-could-give-much-needed-boost-troubled-us-nuclear-industry-1595068)

**The Obama administration's new rules aimed at reducing the emissions of greenhouse gases appear likely to boost** a beleaguered yet enormous industry: **nuclear power.**

**As experts sifted through the details** of the regulations proposed by the Environmental Protection Agency and announced earlier this week, **they anticipated that some states could lean more heavily on nuclear power plants as they are forced to diminish their reliance on coal-fired electricity.**

**States that had planned to mothball aging and expensive nuclear plants might choose to continue operating these facilities under the emissions plan. The nuclear industry**— still grappling with fears spawned by the disaster in Fukushima, Japan, alongside competition from cheap natural gas—**has effectively been handed an opportunity to push ahead, say experts.**

Investing in nuclear “may be more attractive now with this rule,” said Doug Vine, a senior energy fellow at the Center for Climate and Energy Solutions, a policy organization. “We think it changes the [economic] equation.”

The EPA's proposal, unveiled Monday, aims to slash carbon dioxide emissions to 30 percent below 2005 levels by 2030, in large part by shifting the nation’s energy mix away from carbon-intensive coal plants and toward cleaner sources like natural gas, renewable energy and nuclear power. Reductions will also come through energy-efficiency measures such as retrofitting older buildings or installing “smart” appliances that use less energy.

In that context, **nuclear offers a relatively straightforward way for states to achieve reductions in their carbon emissions: Since nuclear plants emit no carbon when they operate, states have an incentive to keep existing plants running or to build new ones in order to meet their individual targets.**

Without an emissions mandate, aging or unprofitable plants would likely be retired and replaced mainly by coal or natural-gas fired electricity, Vine said. But under the regulations, such a swap would increase carbon emissions and make it harder for states to comply.

State lawmakers and regulators “are going to be seriously considering what their generation mix has to be, and it may be very cost-effective to find a solution that keeps the nuclear power plant open”—including extending power contracts with plant operators or potentially offering subsidies, he said.

The U.S. nuclear sector has struggled in recent years as cheap natural gas made it difficult for nuclear power to compete in certain electricity markets. The high costs of repairing damaged plants or upgrading older facilities—about half of the nearly 100 U.S. reactors are over 30 years old—is also economically unviable in some cases. Four nuclear reactors recently retired early in California, Florida, Vermont and Wisconsin for a mix of these reasons.

#### New nuclear facilities are being built now

Magill, 14 (Bobby, senior science writer for Climate Central, focusing on energy and climate change. Prior to joining Climate Central, Magill covered Western energy and environmental issues as a freelance writer for Popular Mechanics. 7-30-14. “Report Paints Bleak Future for Nuclear Power” http://www.climatecentral.org/news/bleak-future-for-nuclear-power-17833)

**The nuclear power industry is assailing the report as biased against it** and overly pessimistic about nuclear’s future in a changing climate. **David Hess, an analyst with the London-based World Nuclear Association, a lobbying group,** told Climate Central that he **expects nuclear power to grow in Asia in the coming years**, primarily in China, India, Russia and South Korea.

**Nuclear power is essential if the world wants to get serious about addressing climate change and reducing carbon dioxide emissions,** Hess said.

Thomas Kauffman, spokesman for the Nuclear Energy Institute, an industry lobbying group, in Washington, D.C., said **more nuclear reactors are under construction today than at any point since 1989, including five in the U.S., while U.S. nuclear power production has increased this year.**

**“Does that sound like an industry in decline?”** Kauffman told Climate Central. **“Of the 30 countries that already use nuclear power, all but a handful are either building new reactors or planning to build new ones**. We encourage Mr. Schneider to continue his tally in the years to come, so he can document the world’s increased use of energy to generate reliable, affordable, carbon-free electricity.”

Schneider said one of the best ways to reduce greenhouse gas emissions from electricity generation isn’t to build new nuclear reactors, but to make buildings more energy efficient.

“It’s the lowest-hanging fruit there is,” he said.

### Extend: “Nuclear Power Solves Warming”

#### Nuclear power is the only energy source that can solve global warming

Murray and Burnett, 09 (Iain and H. Sterling, Director of projects and analysis and senior fellow in energy, science and technology at the Competitive Enterprise Institute (CEI) and Senior fellow with the National Center for Policy Analysis, June "10 Cool Global Warming Policies," National Center for Policy Analysis, http://www.ncpa.org/pdfs/st321.pdf)

**Currently, nuclear power is the only technology capable of providing emissions-free energy on the scale required to significantly reduce carbon emissions. In the United States, almost 700 million metric tons of CO2 emissions annually are avoided due to nuclear-generated electricity.** Worldwide, nuclear generation reduces emissions by almost 2 billion metric tons below what they otherwise would be. However, due to environmental antinuclear activism, which began in the 1970s, building a nuclear plant takes a very long time. This raises development and construction costs to the level that nuclear power is not economically competitive with forms of electricity generation that emit greenhouse gases, such as coal and natural gas. According to the Nuclear Energy Institute, building a new nuclear power plant takes 10 years from concept to operation, only four years of which is needed for actual construction. The additional time is consumed by permit application development (two years) and decision making by the Nuclear Regulatory Commission (four years). The application and approval process has been streamlined over the past decade, but more needs to be done. A potential nuclear power plant builder who has not yet decided to begin construction can file an Early Site Permit application, but it takes an average of 33 months for the Nuclear Regulatory Commission to review it. By contrast, the United Kingdom is introducing a new licensing process under which planning, application and licensing together will take no longer than 18 months. 2° This shows there is considerable scope for reducing regulatory delays. Policy Recommendations. There are policy changes that can 8 NCPA NAIO4M (EN{1 significantly cut the costs of nuclear power-plant construction and make nuclear power more competitive with other generation technologies. Put the industry in charge of fuel cycle management. Under the Energy Policy Act of 1982, the federal government was supposed to collect and manage spent nuclear fuel. Despite failing to do so, it continues to collect fees for that purpose. The industry should have the responsibility and ability to decide how to dispose of the fuel safely. Without an effective and agreed-upon approach to the management of nuclear waste, nuclear power is likely to remain too risky an investment. Remove commodity tariffs. Prices for vital construction materials such as steel and cement are artificially inflated by tariffs. Removing import tariffs would reduce construction costs. For example, large amounts of concrete are used in the construction of nuclear power stations, but thanks to high tariffs, the United States is experiencing a cement shortage. Cement producers such as Mexico have found that it is more profitable to send shipments to China than to the United States because of a 40 percent U.S. import tariff. In 2004, the Portland Cement Association, a trade group representing American and Canadian companies, found that 29 states were experiencing shortages despite the fact that virtually all U.S. cement plants were working around the clock, seven days a week. Lifting or reducing the tariffs would obviously benefit other areas of the economy, such as home building, making this a wide-reaching noregrets policy. Ease immigration requirements for skilled workers. The aging U.S. nuclear industry is losing skilled workers to other careers or retirement. Unfortunately, the employment of highly skilled immigrant workers is severely limited by the highly restrictive Hi-B visa process. Reforming this process would greatly increase the labor pool available and lower costs. Remove regulatory barriers to uranium mining. The industry will need fuel supplies, and various regulatory barriers restrict exploration and mining of domestic uranium on both public and private lands. These barriers must be removed. "Nuclear power is emissions-free." Why Is This a No-Regrets Policy? **Over the next 20 years, U.S. electricity demand is expected to increase more than 45 percent. Even the most comprehensive conservation and efficiency efforts would offset less than one-fourth of this increase in demand.** Not counting hydropower, the rated capacity of all renewable energy combined is less than 2 percent of total generating capacity. Furthermore, **intermittent sources of electric power, such as solar and wind, require redundant power plants. Power plants fueled by coal, natural gas or nuclear fuel are the only reliable sources for baseload power** (required to keep electric power flowing) and peaking power (required to meet daily spikes in demand). **Natural gas and coal both emit CO2 as a byproduct of combustion**. [See Figure II.] Absent a significant breakthrough in the capture of carbon, **nuclear fuel, which emits no C02, is clearly preferable for electric power. Increasing nuclear power generation can supply the energy needed for continued growth while reducing future carbon emissions.**

### Extend: “Nuclear Power Is Practical”

#### Prices will decrease over time and delays will shorten

Spencer, 08 (Jack, Research Fellow in Nuclear Energy at The Heritage Foundation, 3/19/2008. “Finland's Rational Approach to Nuclear Power”, http://www.heritage.org/Research/Energyandenvironment/bg2117.cfm)

**Critics have questioned the economic viability of nuclear power based on delays** associated with Fin­land's reactor.[8] At $1.4 billion over budget and two years behind schedule, Finland's reactor has had its problems.[9] **However, these delays and cost over­runs are not necessarily indicative of the future eco­nomic viability of nuclear power**. Olkiluoto 3 is a first-of-a-kind, large, multibil­lion-dollar power station. **Assigning all of the costs of the first plant to future plants would not be accu­rate. Construction costs will be reduced as lessons learned from initial construction projects are inte­grated into future ones.** Some of the overruns are simply a reflection of rising labor and material costs. These increases, which are not unique to the nuclear industry, would affect any project. **Building the 3,200 windmills that would be needed to produce the same amount of electric­ity as Olkiluoto 3 will produce would likely suffer from the same price volatility**.[10] A lack of skilled personnel, shortages of nuclear-qualified components and materials, and inexperi­enced vendors and subcontractors have also slowed progress.[11] Very few reactors have been ordered over the past three decades, and the industrial base and skill sets are simply not yet available to support the growing demand for commercial nuclear power. Although these risks should have been expected for a project like Olkiluoto 3, they are also correctable and will be resolved by the market over time.

**As backlogs are created by new orders, nuclear suppliers will invest to expand capacity. For exam­ple, Japan Steel Works has already announced that it will expand its capacity to produce the large forg­ings used to manufacture reactor components. It is the sole supplier of these forgings on the world mar­ket. Other companies have made similar announce­ments to provide expanded uranium enrichment, mining, manufacturing, and used-fuel services. This growth in capacity will eventually meet demand and moderate some of the inflationary pressures that are driving up costs for Finland's newest reactor.**

# Solvency

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### 1NC – Solvency

#### Multiple barriers to offshore wind development

Craig, 11 (Michael, Americans for Energy Leadership, 3/2, Offshore Wind in the United States: The Next Big Thing?, http://leadenergy.org/2011/03/offshore-wind-in-the-united-states-the-next-big-thing/)

**Obtaining the necessary permits and licenses for an offshore wind farm is a process that spans multiple agencies and potential stumbling blocks**. The poster boy of this grueling process is **Cape Wind**, which **has been in the works for over a decade due to lawsuits, permitting inefficiencies, and other problems.** While its struggle can be partly blamed on its contentious location, it nonetheless serves as a stark warning to other investors. The major permitting agency for most offshore wind farms is **the newly-formed Bureau of Ocean Energy Management**, Regulation, and Enforcement (previously the Minerals Management Service), which presides over all development in the Outer Continental Shelf. Specifically, BOEMRE issues leases and permits to all wind farms located beyond state waters, i.e. greater than 3 nautical miles (nm) off shore. **The Army Corps of Engineers** must also issue a permit under the Clean Water Act for construction operations, **and FERC must approve** all connections to the grid. As is the case with other renewable sectors, **projects must also comply with a host of other less significant federal and, where applicable, state regulations. Obtaining the required permits is estimated to currently take about 7 years. Because of the long duration from inception to construction, a great deal of uncertainty surrounds offshore wind farms**. The electricity market, for one, can shift greatly over the course of 7 years, as aptly demonstrated over the course of the recent recession. Lawsuits can also be brought against the farm which could further delay completion or even stop the project. Finally, policies favorable to offshore wind that may currently exist could very well be discontinued by the time a farm comes to fruition, a situation the onshore wind industry can painfully identify with due to volatility in the Production Tax Credit. Although uncertainty is not prohibitive in and of itself – onshore wind construction does occur when the PTC is defunct, just at a slower rate – its combination with large capital costs for offshore wind makes any endeavor a risky proposition. **Cape Wind, for instance, is projected to cost $2.5 billion excluding financing costs, while other projects range between hundreds of millions to billions depending on their capacity. Unplanned delays, e.g. from lawsuits, drive costs up even further, not to mention the necessary transmission infrastructure.**

#### Offshore wind won't work – the Netherlands tried the plan and failed

Nelson, 11 (D. Brady Nelson, an economist, writing for The Heartland Institute, a think tank advocating for free markets. Published December 30, 2011. http://news.heartland.org/newspaper-article/2011/12/30/dutch-pull-plug-offshore-wind-subsidies)

**The nation known for its iconic windmills is throwing in the towel on offshore wind power, as Dutch officials have determined the Netherlands can no longer afford large-scale subsidies for expensive wind turbines that cannot produce electricity at economically competitive prices.**

The decision is a powerful blow against renewable power advocates who have long asserted Holland proves renewable power can be practical and economical.

Offshore Wind ‘Very Uncompetitive’

**“Offshore wind remains a very uncompetitive option,” Dutch Minister of Economic Affairs Maxime Verhagen told Wind Directions:** The European Wind Industry Magazine.

“Offshore wind remains a very expensive option in the near future. **The Dutch government is willing to invest in innovation to bring down the costs of offshore wind energy, but prices must come down considerably before large scale investments can again be supported**,” Verhagen was quoted as saying.

Despite large subsidies from the Dutch government, wind power provides merely 4 percent of Dutch electricity. With government pulling the plug on subsidies for offshore wind power generation, that number is likely to shrink further.

Offshore Cost Factors

**Winds off the coast of the Netherlands and other nations often are more suitable for wind power generation than land-based sites, but it is more expensive to build and maintain wind farms offshore than on land. Drilling the seabed to support turbines is difficult and expensive; salt water and salt air corrode offshore turbines very rapidly; accessing offshore turbines for regular maintenance is costly; and connecting offshore turbines to the power grid presents unique challenges.**

**The Netherlands will continue to subsidize land-based wind turbines, but public opposition is growing against the large turbines that many say are blighting the landscape and posing special health risks.**

“Even if it is accepted that carbon dioxide outputs should be reduced, governments have gone about this in a very inefficient and expensive way,” said economist Philip Booth, program director of the UK’s Institute of Economic Affairs. “They must wake up and appreciate the cost—both financial and environmental—of their energy policies.”

Offshore wind turbines came online in the Netherlands in 2006 and cost Dutch taxpayers more than $5 billion last year.

#### Multiple technical barriers hinder offshore wind development

Nunez, 12 (Christina, 12-20-12. “As U.S. Eyes Offshore Wind Development, Whales Get New Protections,” http://theenergycollective.com/cnunez/162456/us-eyes-offshore-wind-development-whales-get-new-protections)

**The United States does not currently have any utility-scale wind turbines installed in its waters**. A DOE-commissioned analysis projects that in a “high-growth scenario,” the offshore wind industry could support up to 350,000 jobs and stimulate $70 billion in annual investments by 2030 (the DOE seems to be sticking to a more conservative number, citing 200,000 potential jobs on its blog and infographic). But the offshore wind industry has many hurdles to overcome in order to achieve that high growth.

Aside from the potential end of the production tax credit, which would result in a loss of $10 billion in investments to the wind industry as a whole next year, according to a report from the American Wind Energy Association, **the offshore wind industry faces** other significant challenges. Though offshore wind has the potential to generate 4,000 gigawatts of electricity — four times the current overall U.S. generation capacity — **the industry lacks adequate means of integrating** that **power with the nation’s grid.** (See related story: “High-Voltage DC Breakthrough Could Boost Renewables“)

As the DOE notes in its National Offshore Wind Strategy document, **the specialized vessels, port capacity, transmission lines and grid configuration necessary for cost-effective offshore wind energy installations does not yet exist in the United States. Projects also face a complex permitting process that must take into account an array of existing activity in U.S. waters: shipping lanes, fisheries, military operations, and wildlife.**

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### Extend: “Empirically Fails”

#### China’s OSW efforts have failed

Bloomberg News, 14 (“China Three Years Late on Installing Offshore Wind Farms” 7-16-14. http://www.bloomberg.com/news/2014-07-16/china-three-years-late-on-installing-offshore-wind-farms.html)

**China is three years behind schedule on a plan that would make it the world’s biggest market for offshore wind,** a setback for the $15 billion industry that’s seeking to produce affordable electricity from the one of nature’s most reliable energy sources.

China set out an ambitious plan in 2011 to build 5,000 megawatts of offshore wind turbines in four years, enough to power 5.4 million homes. With less than 10 percent of that capacity in place, officials now say they won’t meet that goal.

Strong, steady offshore breezes have the potential to become an important source of electricity, but **installing jumbo-jet sized gear in the harsh, marine environment is a complicated and expensive endeavor. The slow pace in China is matched by the U.S., which has no offshore wind farms after more than a decade of development efforts. In Europe,** the only continent with any significant sea-based wind power, **companies have scrapped plans for more than 5,700 megawatts since November.**

**China is “more cautious” on offshore wind** than it was on solar and onshore wind **because “it’s more risky and costly,”** said Shi Pengfei, honorary chairman of the Chinese Wind Energy Association.

**The target for offshore wind “definitely can’t be attained,**” said Li Junfeng, director general of the National Center for Climate Change Strategy and International Cooperation. **That’s a rare public admission from the government agency responsible for studying climate-change policy.**

Turbine Makers

German power-equipment maker Siemens AG (SIE), along with Chinese competitors Xinjiang Goldwind Science & Technology Co. (2208) and Sinovel Wind Group Co. (601558), have the most at stake since they’re the top turbine suppliers for China’s offshore projects.

There was 429 megawatts of offshore wind power operating in China at the end of 2013. The country may install about 500 megawatts of offshore capacity next year and 1,000 megawatts in 2016, according to Bloomberg New Energy Finance.

Worldwide, about 2,570 megawatts are expected to be installed this year, worth about $15 billion. That total may grow to 7,560 megawatts in 2020, according to the London-based researcher.

“Offshore wind is at the testing stage and development won’t be too fast,” said Gao Hongbiao, deputy general manager of Jiangsu Longyuan Offshore Wind Power Co., a unit of one of the four biggest Chinese utilities commissioning wind projects.

Onshore Wind

Offshore turbines are insignificant when compared to China’s onshore wind capacity of 77 gigawatts. That’s the most in the world, and the government has plans to install an additional 18 gigawatts this year, according to the National Energy Administration. The cost of power from land-based wind rivals that of coal or natural-gas fired plants. China is moving slowly with offshore wind after its onshore wind industry expanded so quickly that the rest of the country’s energy infrastructure couldn’t keep up. As much as 12 percent of its onshore wind turbines weren’t connected to the grid in 2013. Another 11 percent of the turbines had grid connections and were idled because transmission lines couldn’t handle all the output producing.

“China learned from experience on onshore projects when setting offshore policies,” said Tang Wenqian, executive vice secretary-general of the Chinese Renewable Energy Industries Association, an organization that acts as a conduit between government policy makers and industry executives.

‘Well Behind’

**What’s happening in China is mirrored in other regions**, said Steve Sawyer, secretary-general of the Global Wind Energy Council.

**Progress in the industry “is well behind most projections that have been made,”** he said in an e-mail.

**In the U.S., Cape Wind Associates LLP has been planning what may be the country’s first offshore wind farm for more than a decade,** in Nantucket Sound, off Massachusetts. It’s faced stiff opposition from fisherman, American Indian groups and local residents including both the Koch and Kennedy families.

A handful of other companies are also developing Atlantic Coast wind farms. The U.S. Interior Department has awarded five leases from Massachusetts to Virginia and is planning to auction more offshore sites this year.

Europe is the most advanced market for offshore wind, with about 7.3 gigawatts in operation, and 4.9 gigawatts under construction, according to the European Wind Energy Association.

Unexploded Mines

Even there, environmental concerns and risks including unexploded World War II-era undersea mines are driving up the cost of what’s already a costly source of power. Developers have canceled plans to build more than 5,700 megawatts of additional capacity since November.

**Offshore wind is among the most expensive renewable energy technologies working at utility scale. Towers as tall as 40-story buildings must be anchored to the seabed, holding blades as long as the wingspan on the biggest commercial jetliners. The units must withstand storms that buffet the coast,** including typhoons that hit China in the summer.

### Extend: “Technical Barriers”

#### Too many technical barriers to offshore wind

US Department of Energy, 2011 (A National Offshore Wind Strategy: Creating an Offshore Wind Strategy in the United States, February 2011, http://www1.eere.energy.gov/wind/pdfs/national\_offshore\_wind\_strategy.pdf)

**Significant challenges to offshore wind power deployment related to resource characterization, grid interconnection and operation, and infrastructure will need to be overcome. The offshore wind resource is not well characterized. This significantly increases uncertainty** related to potential project power production and turbine and array design considerations, **which in turn increase financing costs. The implications for adding large amounts of offshore wind generation to the power system need to be better understood** to ensure reliable integration and to evaluate the need for additional grid infrastructure such as an offshore transmission backbone. **Finally, with current technology, cost ‐ effective installation of offshore wind turbines requires specialized vessels, purpose ‐ built portside infrastructure, robust undersea electricity transmission lines, and grid interconnections. These vessels and this infrastructure do not currently exist in the U.S. Although foreign ‐ flagged turbine installation and maintenance vessels exist, legislation such as the Jones Act limits the ability of these vessels to operate in U.S. waters.**