# Inherency

#### The Energy Policy Act of 2005 only designated the DOI as the lead federal agency for OSW development- other federal agencies retained permitting authority and jurisdiction

Weber 7

[Lucas, no qualifications available, published on WindPower.net- the North American Offshore Wind Power Information Project, “Offshore Wind Energy Permitting”, May 10, p. online//wyo-tjc]

While several issues regarding the sufficiency of a Corps permit for offshore wind energy development along the OCS were being litigated60, the Energy Policy Act of 2005 was enacted. Section 388 of the Energy Policy Act of 2005 eliminates the regulatory uncertainty surrounding offshore wind energy development by establishing explicit authority for permitting renewable energy and related uses of the OCS.62 Section 388 amends the OCSLA by adding subsection 43 U.S.C. § 1337(p)(1), which authorizes the Secretary of the Interior (Secretary), in consultation with other relevant agencies, to grant leases, easements, or rights-of-way on the OCS for specific activities, including wind energy development.63 In essence, it entrusts the Department of the Interior (Department) with the authority to grant offshore property interests for the purpose of renewable energy development on the OCS and the authority to regulate activities resulting from such development.

The Act creates a framework that shifts authority to the Department without completely striping all other agencies of their authority. It is careful to make clear that federal agencies with permitting authority under other federal laws still retain their jurisdiction, notwithstanding the enactment of section 388.64 Thus, the offshore developments will be subject to multiple permitting requirements.65 Despite the care taken to preserve other agencies’ permitting authority, the Act fails to designate a lead agency to coordinate federal permitting and prepare NEPA analyses. The Department, however, infers from several of section 388’s provisions that it is to serve as the lead agency. For example, the Secretary is directed to consult with other agencies during the process of awarding leases, easements, or rights-of-way.66 Also, the Department must ensure that activities carried out under this new authority provide for coordination with relevant federal agencies.67 Therefore, federal agencies may retain their permitting authority over offshore renewable energy development but the Department serves as the lead agency.

# Plan

#### The United States federal government should give exclusive permitting authority to the Bureau of Ocean Energy Management for the production of offshore wind power in the United States.

# Solvency

#### Federal permitting consolidation is key to circumvent opposition to OSW and create certainty - state action is insufficient- opponents will just challenge at the federal level

Kimmell and Stalenhoef 11

[Kenneth, general counsel to the Massachusetts Executive Office of Energy and Environmental Affairs, was responsible for overseeing the state permitting of the Cape Wind project, and now serves as the Commissioner of the Massachusetts Department of Environmental Protection, and Dawn, environmental law attorney and Counsel for the Massachusetts Department of Public Utilities, Golden Gate University Environmental Law Journal, “The Cape Wind Offshore Wind Energy Project: A Case Study of the Difficult Transition to Renewable Energy”, p. asp//wyo-tjc]

The Cape Wind saga reveals that the current permitting process for offshore wind energy projects is broken. If the nation is serious about developing offshore wind energy projects along its coasts, Congress must advance reform. One place to look for inspiration, ironically, is Massachusetts. Despite its reputation for long and protracted siting battles, Massachusetts has instituted two major reforms that could serve as models for federal reform of offshore wind-project permitting. The first model reform is a “one-stop permitting” law that enables the State Energy Facilities Siting Board to issue a single permit and eliminates the need for any additional state or local permits.85 Enacted during the energy crisis of the early 1970’s, this law ensures that state and local agencies do not block power plants and infrastructure needed for a reliable energy supply. The law allows the Siting Board to step in when an energy project proponent is denied a necessary permit or experiences significant delays, including those caused by litigation.86 The Siting Board has broad representation: it is composed of the Executive Office of Energy and Environmental Affairs, the Department of Environmental Protection, the Department of Energy Resources, the Department of Public Utilities, and three citizen members representing labor, environmental, and consumer interests.87 It has wide jurisdiction and can review all of the various impacts of energy facilities that would be examined by state or local permitting agencies. It may also receive the input of all state and local agencies that would otherwise be called upon to grant permits.88 This authority ensures that all issues and all possible objections are heard once, rather than multiple times by multiple agencies. And unlike with most permits issued by state agencies, the appeals process is streamlined. Indeed, there is but one appeal of a Siting Board approval, which goes directly to the state Supreme Judicial Court.89 As noted above, this law was crucial to the success of Cape Wind’s permitting on the state level, because it ensured that the permitting of the electric cables would not get bogged down in other state and local level permitting, or be delayed by judicial appeals of such permit decisions. Had this law not been in place, it is likely that Cape Wind would still be in litigation with the Cape Cod Commission over its denial of the electric cables and would be defending the license issued by the Department of Environmental Protection allowing the cables to be placed in Massachusetts’ tidelands. There is no comparable “one-stop permitting” option for offshore wind projects available at the federal level. While the EPACT established that the MMS (now referred to as the Bureau of Ocean Energy Management, Regulation, and Enforcement, or BOEMRE) plays the leading-agency role for issuance of an offshore lease, numerous other federal agencies such as the Army Corps of Engineers, Environmental Protection Agency, Federal Aviation Administration, and the Coast Guard will still need to issue separate approvals for the project. Federal agencies, including the U.S. Fish and Wildlife Service, National Park Service, and the Advisory Council on Historic Preservation, will also play significant “consultative” roles. Rather than having the appeals of the permits lodged in one court, federal law provides for multiple appeals in various federal courts that will have to be resolved before the project can finally proceed. This multiplicity of permitting and consultative agencies, and numerous potential judicial appeals, is a formula for delay, confusion, redundancy, and inconsistency. In short, it is a boon for the forces of inertia.

#### Lack of one-stop permitting destroys the regulatory certainty and timeframe necessary for OSW investment decisions- placing authority under the department of the interior’s lead agency is essential

Weber 7

[Lucas, no qualifications available, published on WindPower.net- the North American Offshore Wind Power Information Project, “Offshore Wind Energy Permitting”, May 10, p. online//wyo-tjc]

As the above description of the various permitting authorities illustrates, the regulatory process for offshore wind energy development can be overwhelming. In order to combat this problem, there must be some form of centralized management. In Europe, the common practice is to use a “one-stop shop office” approach.136 Under this approach, the developers communicate with one official contact office to handle everything from administrative to legal matters. A recent study by the International Energy Agency concluded that the use of “one stop shop offices” has been a success from the point of view of both agencies and developers.137 The MMS, as the lead agency, would be perfect for this “one-stop shop” position. As the one-stop shop agency for wind energy permitting on the OCS, the MMS could streamline the approval process by coordinating with all of the other relevant agencies. In fact, the Energy Policy Act of 2005 mandates such coordination.138 Therefore, the MMS should coordinate efforts with the other relevant agencies to form a one-stop shop permitting office for wind energy development on the OCS. IV. CONCLUSION In sum, developing the United States’ potential for using offshore wind energy will contribute to security of energy supply, reduce dependency on fuel imports, reduce emissions of greenhouse gases and other pollutants, and improve environmental protection. Despite a vast potential for offshore wind energy along the OCS, the MMS is holding potential development hostage through regulatory delay and time-consuming replications of environmental reviews. It is vital that the MMS reduce the regulatory confusion and establish a unified coordinated approach to ensure the expeditious, yet responsible, development of offshore wind energy.

# Grid

#### Grid failures inevitable- heat, storms, winds, hacking, solar flares and mistakes all make an economically crippling blackout inevitable

Montgomery 12

[“Special Report: Vermont's vulnerable power grid”, Jeff Montgomery, Dan D’Ambrosio and Greg Clary Project team reporters. 8-26**-** 2012**,** <http://www.burlingtonfreepress.com/article/20120826/NEWS/308260016/Special-Report-Vermont-s-vulnerable-power-grid//uwyokb>]

Extreme weather is putting America’s power grid to the test, with a year-long run of violent storms and record heat battering a system built for fairer skies. As Vermont prepares to note the one-year anniversary of Tropical Storm Irene on Tuesday, energy officials are acknowledging climate change as a force that finally has to be reckoned with — even as concern grows over other threats that can set off catastrophic blackouts. Winter storms, chains of heat waves and late June’s “super derecho” — a thunderstorm with straight-line winds that snapped electrical transmission towers and shredded power poles in the Mid-Atlantic States — have forced the climate change issue and electric supply vulnerability to the top of an already-daunting list of blackout triggers. Those threats range from computer-hacking cyberterrorists to solar flares, utility mistakes and plain bad luck. Regulators in the U.S. hope to avoid the kind of cascading grid failure that hit India in late July, leaving some 600 million — 10 percent of the world’s population — without power. Miners were trapped underground. Trains shut down. Unimaginable traffic snarls popped up across the country. And India’s image as a rising economic power was cast in darkness. A major blackout in hyper-wired America would also have crippling consequences, with some experts predicting economic losses up to $180 billion. “This is really the fundamental linchpin for everything in our society, our economy, our quality of life,” said Massoud Amin, a University of Minnesota professor and longtime electric industry analyst and consultant. “By deferring infrastructure upgrades, we are basically increasing the risk for the whole system.”

#### Meltdowns are likely after a black-out: an outage will take days to recover- the best plants in the US can last 16 hours without external power

[Cappiello](http://search.boston.com/local/Search.do?s.sm.query=Dina+Cappiello&camp=localsearch:on:byline:art), 11

Dina, staff writer, “NRC casts doubt on US reactors’ blackout plans” <http://www.boston.com/news/nation/washington/articles/2011/04/29/nrc_casts_doubt_on_us_reactors_blackout_plans/?camp=pm>, accessed 10/24/12,WYO/JF

The nation’s top nuclear regulator cast doubt yesterday on whether reactors in the United States are prepared for the type of days-long power outage that struck a nuclear power plant in Japan. The Nuclear Regulatory Commission has required reactors to cope without power from either the electrical grid or emergency diesel generators for four to eight hours. After that time, it assumes some electrical power will be restored. Chairman Gregory Jaczko of the NRC questioned whether four hours is enough time, even though it is unlikely a nuclear power plant would lose power from both the grid and generators as the Japan plant did. Requirements put in place after the Sept. 11 terrorist attacks are expected to lengthen plants’ ability to withstand a blackout. “Four hours doesn’t seem to be a reasonable time to restore offsite power if you lost the diesels immediately,’’ Jaczko said at a commission meeting at the NRC’s Rockville, Md., headquarters. “In the event there is a station blackout that is externally driven, I’m not convinced that in that situation four hours’’ is enough time to restore power. An Associated Press investigation last month examined the risk to the nation’s 104 nuclear reactors to a complete loss of electrical power. In the United States, such a “station blackout’’ has happened only once, at the Vogtle Electric Generating Plant in eastern Georgia in 1990. There, power was restored in 55 minutes. The Japan disaster showed that it could be days before the electricity needed to pump water and keep the radioactive core from melting can be turned back on. The Fukushima Daiichi plant had capacity for eight hours of emergency battery power. When that elapsed, the plant operator struggled to find other ways to cool the cores without onsite or offsite power. “It wasn’t the earthquake or the tsunami that caused the Fukushima nuclear catastrophe — it was an electricity outage. A blackout shouldn’t cause a meltdown,’’ Representative Edward Markey, Democrat of Malden, said in a statement. He has filed legislation that includes expanding the time reactors are required to cope without power. Of the 104 nuclear reactors in the United States, 87 can cope for four hours without power or emergency generators. Another 14, including the Pilgrim Nuclear Power Station in Plymouth, Mass., can cope for eight hours, and three can last for 16 hours. Most reactors rely on batteries for this power source. Markey’s bill calls for a comprehensive approach to improving the safety of the nation’s nuclear plants. It would include requiring reactors to have at least 72 hours of capacity for battery generators. The bill also calls for 14 days of power from backup diesel generators to be available. Currently, plants are required to have seven days of such power available. As part of a review initiated after the Japan disaster, the nuclear commission is looking at whether the blackout rule needs to be updated. At the time the rule was written in the 1980s, the commission assumed electrical power could be restored in 50 minutes to two hours. The NRC added an additional two hours to that time as a safety buffer. Since then, plants have lost offsite power for longer periods of time. In every case, diesel generators kicked on and supplied electrical power, sometimes for days. There also are agreements with power grid operators that nuclear power plants get first priority as power is restored. “We have a high expectation you will restore offsite power, restore emergency diesels or use alternate sources,’’ said Pat Hiland, director of the NRC’s reactor regulation engineering division. But Jaczko, the NRC chairman, pointed out that the blackout regulation is designed to deal with a situation where even diesel generators do not work, as in the case of the Fukushima Daiichi plant in Japan. A top staffer told NRC commissioners yesterday that the Japan situation “has definitely improved’’ in recent weeks. Bill Borchardt, NRC’s executive director for operations, said that while there are still many unanswered questions about equipment failures and other problems at the facility, the situation is “certainly not as highly dynamic’’ as it was. Overall, Japan is “making progress,’’ he said

#### A meltdown in the Northeast United States would quickly escalate and spread clouds of intense radiation around the globe- survivors will envy the dead

Wasserman 01(Harvey Wasserman, senior editor of NIRS, October 2001, “America’s Terrorist Nuclear Threat to Itself” < http://www.nirs.org/reactorwatch/security/wassermannukesecurity.htm> WYO/JF)

Without continous monitoring and guaranteed water flow, the thousands of tons of radioactive rods in the cores and the thousands more stored in those fragile pools would rapidly melt into super-hot radioactive balls of lava that would burn into the ground and the water table and, ultimately, the Hudson. Indeed, a jetcrash like the one on 9/11 or other forms of terrorist assault at Indian Point could yield three infernal fireballs of molten radioactive lava burning through the earth and into the aquifer and the river. Striking water they would blast gigantic billows of horribly radioactive steam into the atmosphere. Prevailing winds from the north and west might initially drive these clouds of mass death downriver into New York City and east into Westchester and Long Island. But at Three Mile Island and Chernobyl, winds ultimately shifted around the compass to irradiate all surrounding areas with the devastating poisons released by the on-going fiery torrent. At Indian Point, thousands of square miles would have been saturated with the most lethal clouds ever created or imagined, depositing relentless genetic poisons that would kill forever. In nearby communities like Buchanan, Nyack, Monsey and scores more, infants and small children would quickly die en masse. Virtually all pregnant women would spontaneously abort, or ultimately give birth to horribly deformed offspring. Ghastly sores, rashes, ulcerations and burns would afflict the skin of millions. Emphysema, heart attacks, stroke, multiple organ failure, hair loss, nausea, inability to eat or drink or swallow, diarrhea and incontinance, sterility and impotence, asthma, blindness, and more would kill thousands on the spot, and doom hundreds of thousands if not millions. A terrible metallic taste would afflict virtually everyone downwind in New York, New Jersey and New England, a ghoulish curse similar to that endured by the fliers who dropped the atomic bombs on Hiroshima and Nagaskai, by those living downwind from nuclear bomb tests in the south seas and Nevada, and by victims caught in the downdrafts from Three Mile Island and Chernobyl. Then comes the abominable wave of cancers, leukemias, lymphomas, tumors and hellish diseases for which new names will have to be invented, and new dimensions of agony will beg description. Indeed, those who survived the initial wave of radiation would envy those who did not. Evacuation would be impossible, but thousands would die trying. Bridges and highways would become killing fields for those attempting to escape to destinations that would soon enough become equally deadly as the winds shifted. Attempts to quench the fires would be futile. At Chernobyl, pilots flying helicopters that dropped boron on the fiery core died in droves. At Indian Point, such missions would be a sure ticket to death. Their utility would be doubtful as the molten cores rage uncontrolled for days, weeks and years, spewing ever more devastation into the eco- sphere. More than 800,000 Soviet draftees were forced through Chernobyl's seething remains in a futile attempt to clean it up. They are dying in droves. Who would now volunteer for such an American task force? The radioactive cloud from Chernobyl blanketed the vast Ukraine and Belarus landscape, then carried over Europe and into the jetstream, surging through the west coast of the United States within ten days, carrying across our northern tier, circling the globe, then coming back again. The radioactive clouds from Indian Point would enshroud New York, New Jersey, New England, and carry deep into the Atlantic and up into Canada and across to Europe and around the globe again and again. The immediate damage would render thousands of the world's most populous and expensive square miles permanently uninhabitable. All five boroughs of New York City would be an apocalyptic wasteland. The World Trade Center would be rendered as unusable and even more lethal by a jet crash at Indian Point than it was by the direct hits of 9/11. All real estate and economic value would be poisonously radioactive throughout the entire region. Irreplaceable trillions in human capital would be forever lost. As at Three Mile Island, where thousands of farm and wild animals died in heaps, and as at Chernobyl, where soil, water and plant life have been hopelessly irradiated, natural eco-systems on which human and all other life depends would be permanently and irrevocably destroyed, Spiritually, psychologically, financially, ecologically, our nation would never recover. This is what we missed by a mere forty miles near New York City on September 11. Now that we are at war, this is what could be happening as you read this. There are 103 of these potential Bombs of the Apocalypse now operating in the United States. They generate just 18% of America's electricity, just 8% of our total energy. As with reactors elsewhere, the two at Indian Point have both been off-line for long periods of time with no appreciable impact on life in New York. Already an extremely expensive source of electricity, the cost of attempting to defend these reactors will put nuclear energy even further off the competitive scale. Since its deregulation crisis, California---already the nation's second-most efficient state---cut further into its electric consumption by some 15%. Within a year the US could cheaply replace virtually with increased efficiency all the reactors now so much more expensive to operate and protect. Yet, as the bombs fall and the terror escalates, Congress is fast-tracking a form of legal immunity to protect the operators of reactors like Indian Point from liability in case of a meltdown or terrorist attack. Why is our nation handing its proclaimed enemies the weapons of our own mass destruction, and then shielding from liability the companies that insist on continuing to operate them? Do we take this war seriously? Are we committed to the survival of our nation? If so, the ticking reactor bombs that could obliterate the very core of our life and of all future generations must be shut down.

#### OSW solves the advantage:

#### Wind uniquely solves blackouts in the Northeast creates inherent resiliency against disruptions, design does not create cascades and allows instantaneous power-up after a crisis, cutting the length of blackouts

Elisa Wood, 11/1

“Hurricane Sandy Uncovers Strength and Simplicity of Renewable Energy Systems” <http://www.renewableenergyworld.com/rea/news/article/2012/11/hurricane-sandy-uncovers-strength-and-simplicity-of-renewable-energy-systems?cmpid=WNL-Friday-November2-2012>, accessed 11/5/12,WYO/JF

Wind and solar are relatively safe forms of energy, a feature that we tend to overlook until a disaster hits like the "superstorm" that disabled New York City's power grid this week. Unlike fossil fuel plants, they require no combustible fuels to generate electricity. And there is no danger that they will leak radiation as did the Fukushima-Daiichi nuclear plant following last year’s tsunami in Japan. Hence, the Northeast’s wind and solar farms evoked little public anxiety this week when Hurricane Sandy hit – unlike the nuclear and fossil fuel infrastructure. Safety officials kept a careful eye on the nuclear power plants and three were shut down in New Jersey and New York. And the smell of natural gas in any flooded areas drew quick attention from those who understood the danger. These anxieties speak to a larger difference between renewables and conventional generation. Specifically, wind and solar operate under simpler systems that are prone to fewer problems, say renewable energy advocates. Simple Design, Simple Operations First of all, wind and solar do not need additional energy inputs to produce electricity or cool a reactor, said John Kourtoff, president and CEO of Toronto-based Trillium Power Wind. There is no need for natural gas, oil or coal to be excavated, transported and applied to the system. Instead, they produce electricity by taking advantage of a form of energy that is already available – wind and sun. Second, they mimic nature in design, so they tend to be more resilient and withstand natural disasters better, he said. “Renewables at their core are simple bio-mimicry based on nature. This simple and closed aspect makes them successful when storms and natural disasters happen, whether hurricanes, earthquakes, or tsunamis,” Kourtoff said. He pointed out that last year’s tsunami in Japan devastated a nuclear plant, but [wind turbines](http://www.renewableenergyworld.com/rea/news/article/2011/05/the-dangers-of-energy-generation) near the shore suffered no harm. Wind and solar farms mimic a natural cell-like structure, so they are less likely than conventional power plants to succumb to a cascading failure, according to Kourtoff. You lose a blade on a wind tower and you don’t lose the whole wind farm — just like you don’t kill a flower if a petal comes off. But for more complex energy systems, like fossil fuel and nuclear plants, failure in one part can bring down the entire production facility in a cascade, he said. “You can put a spike through a solar panel yet the rest of the solar farm runs because it runs on a cellular-like model. If one cell is not operational, the others continue to operate,” he said. He calls nuclear and fossil fuel plants industrial age technologies, and recent wind and solar, “Renewables 2.0,” designs that have grown simpler, with fewer moving parts and more efficient functioning. Kourtoff also likened wind and solar design – at least in philosophy – to the products created by Steve Jobs, which emphasized simplicity, elegance and human appeal. “Why do people like Apple products? They like them because of the simplicity of design. People see beauty in simplicity, in nature. You never hear anyone say, ‘Look at that beautiful nuclear plant.’ But if you see wind turbines moving gracefully in the water, they look beautiful,” Kourtoff said. The simplicity also offers practical benefits. “In terms of renewable energy, it can certainly help the grid come back quickly from weather situations like Hurricane Sandy,” said Carol Murphy, executive director, Alliance for Clean Energy New York. “It can take nuclear plants a week or more to come back online. Wind and solar, like other generators, do shut down during extreme weather conditions, but they can be back up and produce power quickly.” How Did Renewables Weather the Storm? Based on early assessments, renewable energy facilities seemed to fare well during Hurricane Sandy. ISO New England said it received no reports of any damage to wind or solar facilities from the storm. Iberdrola Renewables, which owns wind farms in Massachusetts, New Hampshire, New York and Pennsylvania, reported few problems. “We monitored the situation through the night and shut down sites as a precaution to protect equipment from extreme winds. Inspections today have revealed minimal damage so far. We are very satisfied with the response of our people and the performance of the sites through an exceptional event,” said Jan Johnson, Iberdrola Renewables’ communications director. Long Island suffered some of the most severe destruction, wiping out service to most of the Long Island Power Authority’s 1.1 million customers. But the island’s 32-MW Long Island Solar Farm appears to have come through fairly well. Nothing “catastrophic” happened at the facility, according to Matt Hartwig, spokesman for BP Alternative Energy, which operates the solar farm. “They are beginning their assessment, which initially shows damage to the fence around the facility as well as some module damage, the extent of which is not yet known.” New York, Connecticut and other hard hit areas happen to be in various stages of devising long-term energy plans. We’ll soon see if Hurricane Sandy – and lessons learned about renewable energy performance in storms – will add a new dimension to policy decisions about the future role of wind and solar.

#### And OSW solves East Coast electricity demand- drops prices and solves grid congestion that creates cascades

Marcacci 12

[Silvio, Principal at Marcacci Communications, a full-service clean energy public relations company based in Washington, D.C., Clean Technica, “Offshore Wind On The Atlantic Cost Could Create 300,000 Jobs And $200 Billion In Economic Activity”, p. online//wyo-tjc]

Beyond creating new jobs and economic activity building and operating all these new turbines, plugging offshore wind into our nation’s grid can increase reliability and lower utility prices. Offshore winds blow strongest during the day and in heat waves – precisely the points when demand for electricity is highest and the risk of power shortages most acute. In addition, the greatest potential wind power lies along some of the East Coast’s biggest cities. Grid congestion has constrained the ability of cheaper power to reach these demand pools and created some of the highest power prices in the country.

But if these population centers could tap into steady electricity being generated just offshore, growing demand could be met cheaply. In fact, New York State’s grid operator recently found consumers save $300 million in wholesale electricity costs for every 1 GW of wind on the grid.

#### OSW is uniquely key to solve electricity demand in the United States- it overcomes issues with transmission costs, intermittency, and load capacity factors all because it is on the water\*\*

Schroeder 10

[Erica, J.D. from University of California, Berkeley, School of Law, 2010. And Masters in Environmental Management from Yale School of Forestry & Environmental Studies, “Turning Offshore Wind On”, California Law Review, p. ln//wyo-tjc]

Many of the most compelling benefits of offshore wind are similar to those of onshore wind, though offshore wind has its own unique set of benefits. To start, wind power generation can help meet the growing energy demand in the United States. The U.S. Energy Information Administration predicts that the demand for electricity in the United States will grow to 5.8 billion MWh in 2030, a 39 percent increase from 2005.58 The more that wind power can help to meet this demand, the more diversified the United States’ energy portfolio will be, and the less susceptible the nation will be to dependency on foreign fuel sources and to price fluctuations in traditional fuels.59 In addition, wind power benefits the United States by creating a substantial number of jobs for building and operating the domestic wind energy facilities.60 In an April 2009 speech at the Trinity Structural Towers Manufacturing Plant in Iowa, President Obama predicted that if the United States ―fully pursue[s] our potential for wind energy on land and offshore,‖ wind power could create 250,000 jobs by 2030.61

Once a wind project is built, it involves only minimal environmental impacts compared to traditional electricity generation. Wind power emits negligible amounts of traditional air pollutants, such as sulfur dioxide and particulate matter, as well as carbon dioxide and other greenhouse gases.62 Lower emissions of traditional air pollutants means fewer air quality-related illnesses locally and regionally.63 Lower greenhouse gas emissions will help to combat climate change, effects of which will be felt locally and around the world.64 According to the International Panel on Climate Change (IPCC), the effects of climate change will include melting snow, ice, and permafrost; significant effects on terrestrial, marine, and freshwater plant and animal species; forced changes to agricultural and forestry management; and adverse human health impacts, including increased heat-related mortality and infectious diseases.65 The U.S. Energy Information Administration estimates that the United States emits 6 billion metric tons of greenhouse gases annually, and it expects emissions to increase to 7.9 billion metric tons by 2030, with 40 percent of emissions coming from the electric power sector.66 Thus, if the United States can get more of its electricity from wind power, it will contribute less to climate change, and help to mitigate its negative impacts. Furthermore, wind power does not involve any of the additional environmental costs associated with nuclear power or fuel extraction for traditional electricity generation, such as coal mining and natural gas extraction.67 Wind power generation also does not require the water necessary to cool traditional coal, gas, and nuclear generation units.68

Moreover, offshore wind power has certain attributes that give it added benefits compared to onshore wind. Wind tends to be stronger and more consistent offshore—both benefits when it comes to wind power generation.69 This is largely due to reduced wind shear and roughness on the open ocean.70 Wind shear and roughness refer to effects of the landscape surrounding turbines on the quality of wind and thus the amount of electricity produced.71 While long grass, trees, and buildings will slow wind down significantly, water is generally very smooth and has much less of an effect on wind speeds.72 In addition, because offshore wind projects face fewer barriers—both natural and manmade—to their expansion, offshore developers can take advantage of economies of scale and build larger wind farms that generate more electricity.73

Importantly, offshore wind also could overcome the problems that onshore wind faces regarding the distance between wind power generation and electricity demand. That is, although the United States has considerable onshore wind resources in certain areas, mostly in the middle of the country, they are frequently distant from areas with high electricity demand, mostly on the coasts, resulting in transmission problems.74 By contrast, offshore resources are near coastal electricity demand centers.75 In fact, twenty-eight of the contiguous forty-eight states have coastal boundaries, and these same states use 78 percent of the United States’ electricity.76 Thus, offshore wind power generation can effectively serve major U.S. demand centers and avoid many of the transmission costs faced by remote onshore generation.77 If shallow water offshore potential (less than about 100 feet in depth) is met on the nation’s coasts, twenty-six of the twenty-eight coastal states would have sufficient wind resources to meet at least 20 percent of their electricity needs, and many states would have enough to meet their total electricity demand.78

# Warming

**American clean energy markets are on the verge of collapse- incentives and declining export opportunities will gut renewables absent fast policy action**

**Jenkins et al 12**

[Jesse, Director of Energy and Climate Policy, Breakthrough Institute, Mark Muro, Senior Fellow, Metropolitan Policy Program, Brookings Institution, Ted Nordhaus and Michael Shellenberger, Cofounders, Breakthrough Institute, Letha Tawney, Senior Associate, World Resources Institute, Alex Trembath, Policy Associate, Breakthrough Institute, Beyond Boom and Bust: Putting Clean Tech on a Path to Subsidy Independence, April 2012, p. online//wyo-tjc]

**In the absence of significant and timely energy policy reform, the recent boom in US clean tech sectors could falter**. **Driven by** private innovation and entrepreneurship as well as **critical public sector support in the form of tax credits, grants, and loan guarantees, several clean energy technology (or “clean tech”) segments have grown robustly in recent years while making progress on cost and performance**. Renewable electricity generation doubled from 2006 to 2011, construction is under way on the nation's first new nuclear power plants in decades, and American manufacturers have regained market share in advanced batteries and vehicles. Prices for solar, wind, and other clean energy technologies fell, while employment in clean tech sectors expanded by almost 12 percent from 2007 to 2010, adding more than 70,000 jobs even during the height of the recession.1 **Despite this recent success**, however, **nearly all clean tech segments in the United States remain reliant on production and deployment subsidies** or other supportive policies to gain an expanding foothold in today’s energy markets. **Now, many of these subsidies and policies are poised to expire—with substantial implications for the clean tech industry**. This report aims to take stock of the coming changes to federal clean tech subsidies and programs (Part 1); examine their likely impact on key clean tech market segments (Part 2); and chart a course of policy reform that can advance the US clean tech industry beyond today’s policy-induced cycle of boom and bust (Part 3). Along the way, this report provides a comprehensive analysis of the spending trajectory of 92 distinct federal policies and programs supporting clean tech sectors over the 2009 to 2014 period. As this analysis illustrates, **an era of heightened clean energy spending supported by the American Recovery and Reinvestment Act of 2009** (ARRA) **is now coming to an end, coinciding with the expiration of several additional time-delimited tax credits and programs. As a result, key portions of the clean tech industry can now anticipate substantially reduced federal support** (see Figure ES1). **At the same time, market subsidies are being cut in several European markets,2 reducing export oppor tunities for US clean tech manufacturers and leading to oversupply and declining margins**,3 even as pressure mounts from both low-cost natural gas at home4 and foreign clean tech manufacturers abroad.5 **US clean tech sectors therefore face a combination of new challenges, despite the growth and progress achieved in recent years**. The specific market impacts will vary by sector (see Part 2). But **without timely and targeted policy reform, several sectors are likely to experience more bankruptcies, consolidations, and market contraction ahead**.

**Warming is human caused, shifting the amount of emissions produced is key to stop rapid warming, it’s try or die**

**Muller 12**

 (Richard A., professor of physics at the University of California, Berkeley, and a former MacArthur Foundation fellow, “The Conversion of a Climate-Change Skeptic,” 7-28-12, <http://www.nytimes.com/2012/07/30/opinion/the-conversion-of-a-climate-change-skeptic.html?_r=2andpagewanted=all>), accessed 9/22/12,WYO/JF

**How definite is the attribution to humans**? The carbon dioxide curve gives a better match than anything else we’ve tried. **Its magnitude is consistent with the calculated greenhouse effect — extra warming from trapped heat radiation**. **These facts don’t prove causality** and they shouldn’t end skepticism, **but they raise the bar:** to be considered seriously, **an alternative explanation must match the data at least as well as carbon dioxide does**. **Adding methane**, a second greenhouse gas, **to our analysis doesn’t change the results.** Moreover, **our analysis does not depend on large, complex global climate models, the huge computer programs that are notorious for their hidden assumptions and adjustable parameters. Our result is based simply on the close agreement between the shape of the observed temperature rise and the known greenhouse gas increase**.

**The environment is at the tipping point- Collapse will be fast and catastrophic**

**AFP, 12**

(Agence France-Presse, citing UN study, “Environmental collapse now a serious threat: scientists,” Raw Story, http://www.rawstory.com/rs/2012/06/06/environmental-collapse-now-a-serious-threat-scientists/)

**The paper by 22 top researchers said a “tipping point” by which** the biosphere goes into swift and irreversible change, **with** potentially **cataclysmic impacts for humans, could occur as early as this century.**¶ The warning contrasts with a mainstream view among scientists that environmental collapse would be gradual and take centuries.¶ **The study appears ahead of the June 20-22 UN Conference on Sustainable Development,** the 20-year followup to the Earth Summit that set down priorities for protecting the environment.¶ The Nature paper, written by biologists, ecologists, geologists and palaeontologists from three continents, compared the biological impact of past episodes of global change with what is happening today.¶ **The factors in today’s equation include a world population that is set to rise from seven billion to around 9.3 billion by mid-century and global warming that will outstrip the UN target of two degrees Celsius** (3.6 degrees Fahrenheit).¶ **The team determined that once** 50-90 percent of small-scale ecosystems become altered**, the entire eco-web tips over into a new state, characterised especially by species extinction**s.¶ **Once the shift happens, it cannot be reversed.**¶ To support today’s population, about 43 percent of Earth’s ice-free land surface is being used for farming or habitation, according to the study.

#### Inevitable gas-price contraction will trigger coal-switching and further emissions from gas production—now is key time to lock-in renewable energy deployments to avoid the worst impacts of warming

Rotman 12

[David, editor of Technology Review, Technology Review, “King Natural Gas”, October, p. asp//wyo-tjc]

But optimism about the environmental benefits should be tempered. For one thing, utilities might return to using more coal as increased demand makes natural gas more expensive. Another concern is that extracting and transporting natural gas itself generates greenhouse gases. Dueling studies have published varied and sometimes contradictory estimates of the total emissions associated with natural-gas production, but the contributing factors include the energy used in the extraction process and the fact that methane -- an extremely potent greenhouse gas-is released during drilling and leaks from pipelines during transport. In fact, there are no reliable measurements of how much energy drilling for shale gas consumes or how much methane actually escapes.

In any case, it's clear that switching from coal to natural gas will not come close to delivering the huge reductions in greenhouse-gas emissions that most scientists contend are needed by midcentury to ward off the worst effects of climate change. According to estimates by economist Henry Jacoby and his colleagues at MIT, the increased use of shale gas might lower carbon emissions somewhat in the next five to 10 years, but at best it will keep them flat through 2050. In other words, there is a short window of opportunity to begin inventing and deploying cleaner technologies. Jacoby predicts that natural-gas prices will stay relatively low over the next decade, climbing slowly to around $5 to $6 per million BTUs -- still making it hard for renewables to compete.

#### Climate change results in multiple scenarios for extinction

Sawin 8/12

Senior Director of the Energy and Climate Change Program at the WorldWatch Institute Aug. ’12

(Janet, “Climate Change Poses Greater Security Threat than Terrorism,” <http://www.worldwatch.org/node/77>, accessed 9/30/12,WYO/JF

As early as 1988, scientists cautioned that human tinkering with the Earth's climate amounted to "an unintended, uncontrolled globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war." Since then, hundreds of scientific studies have documented ever-mounting evidence that human activities are altering the climate around the world. A growing number of international leaders now warn that climate change is, in the words of U.K. Chief Scientific Advisor David King, "the most severe problem that we are facing today—more serious even than the threat of terrorism." Climate change will likely trigger severe disruptions with ever-widening consequences for local, regional, and global security. Droughts, famines, and weather-related disasters could claim thousands or even millions of lives and exacerbate existing tensions within and among nations, fomenting diplomatic and trade disputes. In the worst case, further warming will reduce the capacities of Earth's natural systems and elevate already-rising sea levels, which could threaten the very survival of low-lying island nations, destabilize the global economy and geopolitical balance, and incite violent conflict. Already, there is growing evidence that climate change is affecting the life-support systems on which humans and other species depend. And these impacts are arriving faster than many climate scientists predicted. Recent studies have revealed changes in the breeding and migratory patterns of animals worldwide, from sea turtles to polar bears. Mountain glaciers are shrinking at ever-faster rates, threatening water supplies for millions of people and plant and animal species. Average global sea level has risen 20-25 centimeters (8-10 inches) since 1901, due mainly to thermal expansion; more than 2.5 centimeters (one inch) of this rise occurred over the past decade. A recent report by the International Climate Change Taskforce, co-chaired by Republican U.S. Senator Olympia Snowe, concludes that climate change is the "single most important long term issue that the planet faces." It warns that if average global temperatures increase more than two degrees Celsius—which will likely occur in a matter of decades if we continue with business-as-usual—the world will reach the "point of no return," where societies may be unable to cope with the accelerating rates of change. Existing threats to security will be amplified as climate change has increasing impacts on regional water supplies, agricultural productivity, human and ecosystem health, infrastructure, financial flows and economies, and patterns of international migration. Specific threats to human welfare and global security include: ► Climate change will undermine efforts to mitigate world poverty, directly threatening people's homes and livelihoods through increased storms, droughts, disease, and other stressors. Not only could this impede development, it might also increase national and regional instability and intensify income disparities between rich and poor. This, in turn, could lead to military confrontations over distribution of the world's wealth, or could feed terrorism or transnational crime. ► Rising temperatures, droughts, and floods, and the increasing acidity of ocean waters, coupled with an expanding human population, could further stress an already limited global food supply, dramatically increasing food prices and potentially triggering internal unrest or the use of food as a weapon. Even the modest warming experienced to date has affected fisheries and agricultural productivity, with a 10 percent decrease in corn yields across the U.S. Midwest seen per degree of warming. ► Altered rainfall patterns could heighten tensions over the use of shared water bodies and increase the likelihood of violent conflict over water resources. It is estimated that about 1.4 billion people already live in areas that are water-stressed. Up to 5 billion people (most of the world's current population) could be living in such regions by 2025. ► Widespread impacts of climate change could lead to waves of migration, threatening international stability. One study estimates that by 2050, as many as 150 million people may have fled coastlines vulnerable to rising sea levels, storms or floods, or agricultural land too arid to cultivate. Historically, migration to urban areas has stressed limited services and infrastructure, inciting crime or insurgency movements, while migration across borders has frequently led to violent clashes over land and resources. The parallels with terrorism are compelling. Traditional responses to security threats cannot address the root of such problems, and related impacts could persist even if global emissions are cut dramatically over coming decades because of the significant lag time between cause and effect. As with terrorism, we know that changes will occur, but not when or where they will strike, nor how damaging and costly they will be. Climate change already claims more lives than does terrorism: according to the World Health Organization, global climate change now accounts for more than 160,000 deaths annually. By the time the world experiences the climate equivalent of September 11th, or the 2004 Madrid bombings, it could be too late to respond.

#### Transition to OSW in the US is crucial to emission reductions and adaptation against climate change. Regulatory requirements and uncertainty derails investment decisions

Thaler 12

[Jeffrey, University of Maine's first Visiting Professor of Energy Policy, Law & Ethics, and Assistant University Counsel for environmental, energy and sustainability projects, “Fiddling as the world burns: How climate change urgently requires a paradigm shift in the permitting of renewable energy projects”, Environmental Law, Volume 42, Issue 4, Forthcoming, p. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2148122> //wyo-tjc]

As noted in the Introduction, offshore wind energy projects have the potential to generate large quantities of pollutant-free electricity near many of the world’s major population centers, and thus to help reduce the ongoing and projected economic, health, and environmental damages from climate change.99 Wind speeds over water are stronger and more consistent than over land, and “have a gross potential generating capacity four times greater than the nation’s present electric capacity.”100 The net capacity factor101 for offshore turbines is greater than standard land-based turbines, and their blade-tip speeds are higher than their land-based counterparts.102 Offshore wind turbine substructure designs mainly fall into three depth categories: shallow (30 m or less), transitional (>30 m to 60 m), and deep water (>60 m).103 All of the grid-scale offshore wind farms in Europe have monopole foundations embedded into the seabed in water depths ranging from 5m to 30m; the proposed American projects such as Cape Wind in Massachusetts and Block Island in Rhode Island would likewise be shallow-water installations. In deeper water, it is not economically feasible to affix a rigid structure to the sea floor, and floating platforms are envisioned. Three concepts shown below have been developed for floating platform designs, each of which is tethered but not built into the seabed. Each design uses a different method for achieving static stability, and some small pilot efforts are underway to demonstrate the performance of different turbines. 105 Greater wind speeds and thus available energy capture are found further from shore, particularly at ocean depths greater than 60m.106 These attributes, combined with proximity to major coastal cities and energy consumers,107 are why offshore wind—in our carbon-stressed world—requires serious consideration and prompt implementation. As demonstrated in the following pages, however, the maze of federal and state regulatory requirements facing renewable energy projects in general and offshore wind in particular, is especially burdensome.108 These requirements undermine the fundamental goal of significantly increasing reliance on emission-free renewable energy sources109 and, unless substantially revised, will effectively preclude any meaningful efforts to mitigate the many damaging human and economic impacts of climate change. B. Federal and State Jurisdiction U.S. jurisdiction over the ocean and seafloor extends from the coast 200 nautical miles seaward.110 Within the umbrella of U.S. jurisdiction, ocean governance is divided between the federal government and individual states.111 Individual state governments retain title to submerged land within three nautical miles from shore,112 and may regulate activities within that area, subject to federal law;113 the federal government retains title and authority over all remaining waters out to 200 nautical miles from shore (Outer Continental Shelf, or OCS).114 The federal government also retains some jurisdiction within state coastal waters, thus numerous federal laws impact offshore wind development occurring solely within state waters. Likewise, several statutes, most notably the Coastal Zone Management Act (CZMA),115 allow for state review of certain federal activities occurring solely federal waters. These instances will be discussed in greater detail below.