Center for American Progress

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Taking Action on Clean Energy and Climate Protection in 2012

A Menu of Effective and Feasible Solutions

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Introduction and summary

Last year threw into stark relief America's interlinked economic, energy security, and climate crises. On the economic front Americans called out those lawmakers who work relentlessly to build an economy that works for the wealthy few rather than for all of us, but faced determined resistance from conservatives bent on preserving the status quo. At the same time our nation's debilitating dependence on fossil fuels and the damages caused by climate disruption became ever more obvious. Yet here too conservative resistance was implacable. Backed by climate-science deniers and opponents of clean energy—generously funded by their industry backers—conservatives ramped up their campaign of disinformation about dirty energy to push their pollution-promoting policy advocacy work in Washington and around the nation.

The result: seemingly insurmountable gridlock.

And yet 2011 also was a year of historic clean energy investments. The United States passed China to become the global leader among nations in clean energy investment,[1] and new data revealed the startling growth of several clean energy sectors in years of sluggish growth for the overall economy. These trends are further evidence of how our economic, energy, and climate crises offer enormous opportunity to build a clean energy economy that makes America more secure, competitive, and equitable. By transitioning our energy infrastructure from capital-intensive, risky, and often highly polluting energy sources to clean, labor-intensive energy sources we can create many new jobs, grow our middle class, ensure greater energy security, and protect our nation and planet from the predictable ravages of unchecked climate change.

In fact, as we argue in this paper, we can take steps today that will get us on the path toward achieving three critical goals:

- Producing more clean energy to grow the economy
- Reducing pollution while saving energy and dollars
- Building more resilient and balanced economies and communities

These goals remain achievable even in today's gridlocked political environment.

The U.S. Department of Labor's Bureau of Labor Statistics just released data showing 3.1 million jobs in the United States associated with the production of green goods and services in 2010, accounting for 2.4 percent of total employment. Of those 3.1 million jobs, 2.3 million were found within the private sector, with 461,800 in the manufacturing sector alone.[2] An earlier Brookings Institution report produced similar numbers and showed that the newest renewable energy industries grew at a "torrid pace" annually between 2003 and 2010: Solar thermal expanded by 18.4 percent; wind power by 14.9 percent; solar PV by 10.7 percent; and biofuels by 8.9 percent. Overall these newer "clean tech" sectors grew by 8.3 percent annually, double the growth rate for the national economy over the same period.[3]

But we need to do much more. We must accelerate the economic transformation that has already begun and move forcefully into a completely new clean energy economic era defined by stronger industries, better infrastructure, and a steadily growing middle class.

In this paper we propose how to do just that. We identify clean energy and climate solutions that are effective, strategic, and winnable this year. We focus on public policies at the global, national, regional, state, and local levels as well as on private-sector actions that simultaneously address our three broad goals. In the pages that follow we will detail how to achieve these goals this year, but here are our proposals in brief.

Produce more clean energy and grow the economy

- Generate a significant percentage of energy in our nation from renewable and low-carbon sources
- Reduce the cost of clean energy deployment by attracting private investment
- Strengthen our economy by helping our industries and workers capture the economic opportunity of clean energy

Reduce pollution by saving energy and dollars

- Realize significant energy savings in all sectors of our economy
- Reduce greenhouse gas pollution with carbon prices and smart clean energy standards
- Achieve oil savings

Build more resilient and balanced economies and communities

- Ensure climate resiliency and restoration
- Balance energy production with other economic and conservation priorities on public lands and waters

The significance of each of these goals, and the strategies that underlie them, is explained in the main pages of this report. For a more visual representation, see a chart of our solutions menu on pages 66.

Building this clean energy economy will yield benefits far beyond the jobs and businesses it creates. We will ultimately become more secure as a nation as we depend less and less on inherently volatile commodities such as oil, whose price is set by a global market that is increasingly vulnerable to extreme weather events, political unrest, and sudden price spikes caused by shifting global demand exacerbated by speculation. And we will finally begin to chip away at the threat of climate change, with all the economic, environmental, and national security nightmares that come along with rising global temperatures.

We do not pretend that the strategies we lay out here will fully save our climate or our economy. These strategies will not get us to a 17 percent reduction in carbon emissions by 2020, which is what the United States agreed to in global climate negotiations in Copenhagen. They will not replace the millions of jobs lost during the Great Recession. But they will begin that process.

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Some of the strategies we lay out here can be won at the federal level, but we are fortunate that Capitol Hill does not define the parameters of what is possible. Many of the most important solutions can be advanced at local, state, regional, and international levels, and in the private sector. As Environment America showed in their 2011 report, "The Way Forward on Global Warming," an ambitious set of clean energy policies at the federal, state, and local level can actually bring U.S. carbon emissions down by as much as 20 percent by 2020.[4]

Some of the most important policy solutions are not possible in 2012, but if we start to implement the most feasible of them this year, we can maintain the momentum needed to effectively meet our clean energy and climate protection goals in the future. And we can set the stage for 2013 and beyond to take advantage of what we hope will be a more favorable political and policymaking terrain on which more transformational victories can be won.

To be clear: The solutions we focus on in this paper are those that are effective, results-driven, and, most important, those that already have some momentum and can feasibly be won or advanced in 2012. Any victory in the current political environment is essential. After all, we won't achieve this clean energy transformation by hiding from hard facts. Consider some of the most significant indicators that emerged in 2011:

- The nation's unemployment rate at the end of 2011 was 8.5 percent, with rates significantly higher for some demographic groups, among them African Americans at 15.8 percent. About 23.8 million workers were either unemployed or underemployed, with 5.6 million out of work for longer than six months.[5] And over the course of the year there were never fewer than four workers for every job opening.[6]

- Reflecting levels of income and wealth inequality in the United States not seen since the Gilded Age, the richest 1 percent of Americans claimed 40.2 percent of our country's wealth over the last quarter-century compared to a wealth loss of 1.4 percent for the middle of the middle class (the middle fifth of the population).[7]

- The five largest U.S. oil companies made a record-high $137 billion in profits in 2011, while raking in $2 billion in subsidies.[8] At the same time those of us who pay the taxes that subsidize Big Oil continue paying out precious dollars at the pump and suffer from the ill-health effects of fossil-fuel pollution because we have very little choice in how we power and fuel our lives.

- According to the National Oceanic and Atmospheric Administration, the United States set a record with 14 separate billion-dollar weather/climate disasters in 2011, with an aggregate damage total of approximately $55 billion. This record year breaks the previous record of nine $1 billion weather/climate disasters in one year, which occurred in 2008. 2011's disasters resulted in the tragic loss of 669 lives.[9] Human-induced climate change will continue contributing to these devastating extreme weather events. Perhaps most consequentially, weather/climate disasters are already impacting food security around the globe, and point to a future where it becomes impossible to feed the planet's 2050 population of 9 billion.[10]

- A report released by the Global Carbon Budget, an international collaboration of scientists, found that carbon dioxide pollution increased by 5.9 percent in 2010, likely the largest absolute jump in any year since the start of the industrial revolution.[11] This level of increase is higher than the worst-case scenario projected by the Intergovernmental Panel on Climate Change in their 2007 report.

- The International Energy Agency's 2011 World Energy Outlook warned that the world is in danger of locking in to a path that leads to a temperature increase of 11°F unless dramatic changes are made to our fossil fuel infrastructure in the next few years. The report concludes, "Delaying action is a false economy: for every $1 of investment in cleaner technology that is avoided in the power sector before 2020, an additional $4.30 would need to be spent after 2020 to compensate for the increased emissions."[12]

These are not indicators of a country or a planet heading in the right direction.

Overcoming conservative intransigence

Unfortunately, comprehensive energy reform continues to be blocked by conservatives in Congress who are far more responsive to fossil-fuel industries and status quo policies. In the face of such intransigence, and the urgency of the interrelated crises we face, it can be difficult to remain hopeful. Any realistic assessment of the current national political landscape must acknowledge that we won't win a federal price on carbon anytime in the immediate future. A national clean energy standard seems more likely as a near-term solution, though this too is probably an unrealistic goal for 2012.

We make this judgment with the caveat that plans simultaneously released in 2011 by six of the nation's leading think tanks, including the Center for American Progress, across the political spectrum to confront the nation's fiscal challenges point to political possibilities on the horizon. With the exception of the conservative Heritage Foundation, all six included a price on carbon as an effective means of raising revenue. This bipartisan consensus can perhaps lay the foundation for future policy negotiations.[13] A price on carbon would not only raise revenue to drive down our deficit, but would drive down greenhouse gas emissions by forcing fossil fuel-based energy producers to pay for the pollution that they create, which would also level the playing field for clean energy.

Regardless, political realism is no excuse for despair or inaction. The dysfunction of our national politics in the face of the urgency of the climate crisis and our mounting energy insecurity makes it all the more essential that we apply a laser-like focus to what is actually achievable in the short term. While our three achievable goals are each individually critical to the stability and security of the clean energy economy, they are also crucially interrelated. We should not think about scaling up our invest-

ments in renewable energy without also thinking about the jobs and industries that will benefit from those investments. We should not focus on reducing pollution in our current power sector without also thinking about building a smarter, and more balanced, infrastructure for the future.

One thing we've learned from countries such as China and Germany, both of which are taking clean energy and climate solutions seriously, is that the best policy approach to these issues is one that combines environmental strategies with those more traditionally found in economic and workforce development.[14] It would be a huge mistake for us to take a less integrated approach and focus only on one technology, sector, or policy solution as if it alone could solve our climate, economic, or energy security challenges.

The critical question is not if we must pursue these strategies, but rather when we will achieve them. Our choice is between achieving them now—when they are eminently affordable, putting the United States in the pole position to win the most important global economic development race of the 21st century, and not incidentally save the planet—or achieving them later, when they will be expensive, possibly too late to avoid the worst impacts of climate change, and leave us playing economic catch up to China and other countries as everyday Americans suffer more and more.

Given that choice, we vote for now, or at least pretty darn soon. It is not too soon to pursue strategies that will move us further down a path toward a more sustainable energy future.

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Generate a significant percentage of energy from renewable and low-carbon sources

There's no mystery about what kind of federal policy reform is necessary to ensure that a significant percentage of America's energy is generated from low-carbon sources: passing a national clean energy standard that provides the long-term market signal needed by utilities and other industries to make big, job-creating capital investments in clean energy. The Center for American Progress recommends an 80 percent clean energy standard, such as the one recently proposed by Sen. Jeff Bingaman (D-NM), that includes specific incentives to deploy a significant amount of truly renewable energy, such as wind, solar, and geothermal, by 2035.[15]

Anyone who thinks it's not technologically possible to hit these goals hasn't been paying attention to other countries, especially in Europe, where a number of nations are already on track to surpass these standards. Germany has set a goal of

45 percent renewable energy by 2030, and Denmark is hoping to be completely fossil fuel free by then.[16]

What's lacking is not technology but political will. And there may not be enough of that particular renewable resource to pass a clean energy standard in Congress this year. This is more than disappointing, it's dangerous. The United States doesn't have time to waste on this front: Without a long-term market signal to expand demand for renewable energy, there's a danger that underpriced natural gas will overwhelm our energy markets for the next 20 years, crowding out not only renewable energy development, but also new energy innovations.[17]

But all is not lost. There are important congressional and administrative actions that are achievable in 2012 in lieu of a national clean energy standard. And there are numerous efforts underway at state and local levels, as well as in the private sector, to not only scale up renewable energy but also to ensure that other low-carbon forms of energy, in particular natural gas, are produced in a responsible manner that prevents public health threats, environmental damage, and additional greenhouse gas pollution. Taking the steps described below can keep us moving along a path that will ultimately achieve the goal of generating a large percentage of America's energy from low-carbon—and in particular renewable—sources.

Solutions at the federal level

Extend the production tax credit for wind power

Why it matters: The production tax credit for wind power, which provides a tax credit per kilowatt-hour for the first 10 years of the facility's operation, will expire at the end of 2012 unless Congress takes action. Unlike the many permanent breaks that exist for fossil-fuel industries, incentives for the wind industry have fluctuated, resulting in years of boom-bust cycles. With just a short period of consistent support over the last several years, the U.S. wind industry grew significantly, adding 33 gigawatts of generating capacity since 2005, and investing more than $65 billion in new wind projects.[18]

Our nation now leads all other countries in wind power generation. As the U.S. wind industry grew so too did its U.S.-based supply chain of manufacturers, which now consists of 400 facilities spread across 44 different states. This growth in man-

ufacturing quickly increased domestic content from just 25 percent prior to 2005 to 60 percent domestic content today.[19] Letting the production tax credit expire would devastate this economic progress: A new study estimates that extending the credit will create or save 54,000 American jobs over the next 4 years, whereas allowing it to expire would cost 37,000 jobs.[20] Ideally, the credit should be extended for at least four years, but at this moment any extension is critical.

Who decides and how: Extending the production tax credit is up to Congress. Just before this paper went to production in March 2012, Sen. Chuck Grassley (R-IA), along with a group of six bipartisan co-sponsors, introduced the American Energy and Job Promotion Act (S. 2201), which would extend the production tax credit for two years. The American Renewable Energy Production Tax Credit Extension, H.R. 3307, sponsored by Reps. Dave Reichert (R-WA) and Earl Blumenauer (D-OR) has attracted the bipartisan support of 85 co-sponsors and was referred to the House Committee on Ways and Means at the end of 2011.

Our nation now leads all other countries in wind power generation. Letting the production tax credit expire would devastate this economic progress.

Extend the Section 1603 Treasury Cash Grant Program

Why it matters: The Section 1603 Treasury Cash Grant Program was allowed to expire at the end of 2011. The 1603 Program, which allows the investment tax credit (a tax credit for businesses that make investments in renewable energy technology or generation) to be converted to an equivalent cash grant, was an enormous success, attracting approximately $22 billion in private-sector investment in support of more than 22,000 renewable energy projects in all 50 states and creating tens of thousands of jobs. The expiration of this program represents a huge blow to the nation's economic recovery.

The program is still needed to "crowd in" private investment. The so-called tax equity market—which collapsed amid the Great Recession of 2007-2009 because companies were no longer able to accurately predict their long-term tax liabilities due to the severe instability of financial markets and access to credit—resulted in the creation of the 1603 cash grant program in 2009. A survey of tax equity investors estimates that the expiration of the program will reduce financing available for renewable energy projects by 52 percent.[21] Like the PTC, ideally this program would be extended for at least four years, but at this moment any extension is critical.

Who decides and how: Extending the 1603 Program is up to Congress. Sen. Debbie Stabenow (D-MI) recently offered an amendment to a transportation bill that would

extend the 1603 Program, but that amendment was voted down. President Barack Obama included the program in his 2013 budget, extending the credit for one year and subsequently converting the program into a refundable tax credit through 2016.

Eliminate barriers in the investment tax credit program for projects in combined heat and power, waste-heat recovery, and offshore wind energy

Why it matters: According to a study by the Oak Ridge National Laboratory, combined heat and power projects and waste-heat recovery projects could supply 20 percent of U.S. electric capacity by 2020. This is the same share of U.S. electricity currently supplied by nuclear power.[22] And offshore wind is already a viable source of renewable power in Europe and Asia, where more than 8 gigawatts are already installed or under construction and another 32 gigawatts have been permitted. In the United States, the National Renewable Energy Laboratory finds that we could deploy an estimated 54 gigawatts of capacity by 2030.[23]

Currently there is no investment tax credit for waste-heat energy projects or offshore wind energy projects. There is an investment tax credit of 10 percent for combined heat and power projects, but size and capacity limitations to the credit written in the Internal Revenue Code are a barrier to its full utilization. The credit should be expanded to cover these new, renewable sources of energy. In particular, offshore wind and waste-heat energy projects should be eligible for a 30 percent investment tax credit. This is the same size credit that's currently available for solar and geothermal power.

Who decides and how: Congress has authority over the investment tax credit. While the legislative landscape is constantly shifting, current possible vehicles include:

- H.R. 2750, sponsored by Reps. Jay Inslee (D-WA) and Roscoe Bartlett (R-MD), would amend the tax code to modify the investment tax credit for combined heat and power systems to include certain waste-heat recovery investments. The bill was referred to the House Ways and Means Committee in August 2011.

- The Heat is Power Act, H.R. 2812, sponsored by Reps. Ron Paul (R-TX) and Paul Tonko (D-NY), would modify the tax code to include waste-heat and provide a 30 percent investment tax credit for the installation of the technology in industrial settings. Reps. Tonko and Paul reintroduced the bill in August 2011 and it was referred to the House Ways and Means Committee.

- The Incentivizing Offshore Wind Power Act, S. 1397, sponsored by Sens. Tom Carper (D-DE) and Olympia Snowe (R-ME) would provide an investment tax credit for investments in offshore wind production. The bill was referred to the Senate Finance Committee in July 2011.

- H.R. 3238, sponsored by Reps. Bill Pascrell (D-NJ) and Frank LoBiondo (D-NJ), is the House companion to S. 1397. It was referred to the House Committee on Ways and Means in October 2011.

Encourage combined heat and power projects and waste-heat recovery projects to control industrial pollution under new Clean Air Act standards

Why it matters: The Environmental Protection Agency's, or EPA, rulemakings under the Clean Air Act offer important tools for advancing the use of combined heat and power and waste-heat recovery as a form of pollution control that will allow U.S companies, particularly in the manufacturing sector, to comply with new clean air standards in a productive and cost-effective way. This would also help ensure continued electric reliability despite potential retirements of conventional power plants.

Who decides and how: The EPA can advance these two types of clean energy generation under Clean Air Act rules. First, EPA should identify both as preferred technologies that must be considered by states and industries to control the emissions of a regulated pollutant. Second, EPA should write emission limits as "output-based standards," setting emission levels based on useable output (heat and electricity), rather than inputs (exhaust composition and concentration), to fully credit the pollution-control benefits of energy efficiency. Finally, states should set aside resources for both types of technologies in their State Implementation Plans under the Cross-State Air Pollution Rule, which requires states to reduce emissions from power plants that cross state lines.

Form an action team at the Departments of Defense and Energy to increase the use of power-purchase agreements to achieve renewable electricity goals

Why it matters: The 2007 energy bill gave the Department of Defense the ability to enter into 30-year power-purchase agreements, which allows the department to purchase electricity from renewable sources to meet its renewable energy goals.[24] The rest of the federal government can only enter into 10-year power-purchase

agreements, which has greatly constrained their use because larger energy projects typically require terms of 20 years or more.

The Department of Defense has made significant strides on the clean energy front, but it has not taken full advantage of its unique power-purchase agreement authority to put itself in position to meet or surpass its 2025 renewable electricity goal of 25 percent. This strategy would build on the commitment by the U.S. Navy, announced by President Obama in his State of the Union address, to buy 1 gigawatt of energy from renewable sources, primarily through the use of power-purchase agreements. The Department of Energy already deals with the nuance of power-purchase agreements for federal agencies via its Federal Energy Management Program, and would be able to assist the Department of Defense in identifying, obtaining, and implementing power-purchase agreements.

Who decides and how: The secretary of defense could convene this working group.

Solutions at local, state, and regional levels

Pass ballot initiatives or legislation to strengthen state renewable-electricity standards

Why it matters: In the absence of a national clean energy standard it's all the more important for states to strengthen existing state- and regional-level renewable electricity standards and pass new standards where they don't currently exist. Renewable electricity standards set targets for electricity generation from renewable sources, in this instance on the state level.

The feared rollback of state renewable electricity standards after the 2010 state elections has not occurred because new governors who had promised on the campaign trail to eliminate standards, among them Ohio Gov. John Kasich, learned from business executives and the facts on the ground about the job-creating economic value of these market-building policies. So the most important fight now is an affirmative one—a multistate ballot campaign that involves an expanding group of leading clean energy organizations to put strong renewable-electricity-standard initiatives on the ballot in Michigan and possibly more states in 2012. In at least one state, Maryland, there is also a positive fight for a stronger standard that includes offshore wind.

In the absence of a national clean energy standard it's all the more important for states to strengthen existing state- and regional-level renewable electricity standards and pass new standards where they don't currently exist.

Who decides and how: State voters decide on ballot initiatives; state legislators decide on amendments to strengthen current legislation. There are a number of grassroots clean energy campaigns in states across the country—campaigns that are able to push for renewable electricity standards on the ballot in 2012. The Michigan Energy, Michigan Jobs Initiative is currently collecting signatures to petition to put a 25 percent renewable energy standard on the upcoming November 6, 2012 ballot.[25] And in Maryland Gov. Martin O'Malley has sponsored the Maryland Offshore Wind Energy Act, which would establish a carve-out for offshore wind within the state's existing Renewable Portfolio Standard. The governor estimates the bill would create 1,300 construction jobs in Maryland immediately and nearly 500 permanent jobs in maintenance, operations, and indirect industries, as well as putting Maryland in a competitive position in this significant energy industry.[26]

Win CLEAN contracts in cities

Why it matters: Clean Local Energy Accessible Now, or CLEAN, contracts,[27] also known as feed-in tariffs, have generated more renewable energy deployment globally than any other policy tool. CLEAN contracts allow renewable energy project owners to sell their electricity to utilities at a predetermined, fixed price for a long period of time. The United States lags behind Germany, Canada, and other countries in utilizing CLEAN contracts. It's time to change that and cities with municipal utilities are best positioned to be at the forefront of that change.

There should be no shortage of candidates. There are roughly 2,000 cities with municipal utilities, many of them with mayors who have signed on to the U.S. Conference of Mayors' Climate Protection Agreement, with the goal of meeting Kyoto Protocol targets for reducing CO2 pollution. The Kyoto Protocol set the target of 7 percent reduction from 1990 levels of greenhouse gas emissions by 2012 for nations that signed on. Many of these same cities are also home to major universities whose presidents have pledged to reduce their pollution and purchase an increased percentage of electricity from renewable sources.

More cities should follow the lead of Gainesville, Florida, which achieved a six-fold increase in solar capacity in only 18 months with a CLEAN contract.[28] In a 2011 survey conducted for the U.S. Conference of Mayors, 75 percent of mayors polled expect the deployment of clean energy technologies in their cities to increase over the next five years.[29] Clean energy is not perceived as a backburner issue on the local level.

Who decides and how: Local governments can implement CLEAN programs at the municipal level and encourage federal lawmakers to sponsor and vote for legislation that would amend federal law to allow states to implement CLEAN programs. Already in 2012, the City Council of Palo Alto, California has unanimously approved a CLEAN Program, which is designed to add 4 megawatts of solar energy to the grid via medium and large commercial-scale projects during the remainder of 2012.[30]

Require "green power" purchasing by state governments

Why it matters: A number of states—among them Wisconsin, Maryland, and New York—require their state agencies, state universities, and other state-owned institutions to generate or purchase a significant and rising percentage of their power from renewable sources, often via long-term power-purchase agreements. These are sometimes accompanied by goals for energy reduction in state buildings, attainment of green-building certifications to ensure energy efficiency, and the purchase of low-carbon or alternative-fuel vehicles.

Who decides and how: Governors and state legislatures can make this happen via combinations of executive action and legislation, as has already been done in several states.

Expedite permitting processes for offshore wind development in state waters

Why it matters: Offshore wind is a commercially scalable source of renewable energy. Some of the best wind resources in the world exist in close proximity to some of the most densely populated regions in America, such as the northeast and Mid-Atlantic. In Maine, Rhode Island, New Jersey, and Maryland, legislatures and governors are eager to tap into this resource for its potential clean energy contribution and the opportunity to establish a beachhead in their state for an industry with the potential to create hundreds of thousands of jobs, according to "Untapped Wealth: Offshore Wind Can Deliver Cleaner, More Affordable Energy and More Jobs Than Offshore Oil," a 2010 study by the ocean protection nonprofit organization Oceana.[31]

States only control ocean space out to three miles from their shoreline, which limits the potential size of wind farms in state waters. Yet the immense value of these

installations as pilot projects is compounded by the relative ease of permitting—taking the federal government out of the process eliminates numerous hurdles. A concerted push from a state government to expedite its permitting process will allow that state to stake an early claim to "first in the nation" status for a demonstration project and provide a launching pad for a renewable energy industry with tremendous economic promise.

Who decides and how: Governors and state legislatures. Lawmakers and regulators in the states can work with the Bureau of Ocean Energy Management, Regulation and Enforcement, or BOEMRE, to ensure that the federal program "Smart from the Start" works efficiently for stakeholders in the states. The program is currently convening stakeholders in several Atlantic Coast states, and helping to identify coastal areas that are most appropriate for wind production.

Solutions in the private sector

Start the build-out of the Atlantic Wind Connection's offshore wind backbone

Why it matters: Trans-Elect Development Company, LLC, a transmission company based in Maryland, plans to build a $5 billion power-transmission backbone, a project called the Atlantic Wind Connection, with the help of major investments from Google Inc. and New York-based private equity fund Good Energies, Inc. The Atlantic Wind Connection backbone will be built around offshore power hubs that will collect the power from multiple offshore wind farms and deliver it efficiently via sub-sea cables to the strongest, highest-capacity parts of the land-based transmission system.

This system will act as a superhighway for clean energy. When finished the Atlantic Wind Connection will stretch 350 miles off the coast from New Jersey to Virginia and will be able to connect 6,000 megawatts of offshore wind turbines, enough to serve the electricity needs of approximately 1.9 million households. The $1.8 billion first phase, a 150-mile stretch from northern New Jersey to Rehoboth Beach, Delaware, could go into service by early 2016.

Who decides and how: This specific decision will be made by Trans-Elect, its business partners, and PJM Interconnection LLC, which is a regional transmission organization. One potential stumbling block: The project needs to be approved by

When finished the Atlantic Wind Connection will stretch 350 miles off the coast from New Jersey to Virginia and will be able to connect 6,000 megawatts of offshore wind turbines, enough to serve the electricity needs of approximately 1.9 million households.

PJM, which manages the transmission grid in the mid-Atlantic region. PJM should prioritize this project and include it in its long-term planning process.

Set internal industry standards to increase renewable energy use and reduce waste, especially in energy-intensive sectors

Why it matters: Energy-intensive industries such as manufacturing are major energy consumers, accounting for about one-third of all consumer demand for energy in the United States.[32] When these industries commit to using renewable energy rather than fossil fuel-based energy, it makes a big difference to the overall energy sector. Manufacturers can often use the waste products from their own processes as a feedstock for generating energy to power their plants.

The pulp and paper industry is a good example of how industries can make this kind of commitment. This industry's trade association committed to reducing its greenhouse gas emissions by at least 15 percent between 2005 and 2020, in particular by increasing the amount of power it gets from biomass rather than from fossil fuels.[33] The industry already gets approximately 65 percent of its power from biomass (such as logging and wood processing waste).

Who decides and how: Industry trade associations and major corporations have countless opportunities to increase renewable energy use, develop waste-to-energy systems, and reduce greenhouse gas emissions. Companies such as Google Inc. have committed to aggressive renewable energy targets, with a goal of using 35 percent of electricity from renewable sources in 2012.[34]

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Reduce the cost of clean energy deployment by attracting private investment

Navigating the transition from a fossil-fuel-based economy to one powered by clean, domestic energy will require hundreds of billions of dollars in new capital investment. In an era of tight government budgets and a political environment in which too many policymakers incorrectly view fiscal austerity as an effective strategy for economic revitalization, we must be smart about using public investments in clean energy to bring private capital off the sidelines.

At the same time we need to mobilize both public and private sources of financing to lower the cost of clean energy deployment, which is all the more important given the unwillingness of federal policymakers to increase the cost of CO2 pollution. Unfortunately, we still don't have the right tools to help clean energy compa-

nies bridge the so-called valley of death between the development of innovative new products and services and large-scale deployment in the market place.

The ideal solution is a national "green bank," which can unlock private capital investment and help commercialize and fully deploy America's most promising innovations in clean energy technology. Different green bank proposals have been debated in Congress. The Clean Energy Deployment Administration, or CEDA, proposal was passed with strong bipartisan support by the Senate Energy and Natural Resources Committee in 2009 and contains the key elements that any green bank should include. Yet in the politicized wake of Solyndra LLC's bankruptcy, it appears less likely in the near term that such an institution can be established at the federal level, although we expect and will support a strong push for the Clean Energy Deployment Administration from Sen. Jeff Bingaman in Congress.

Therefore, in this section of our paper we must look to other solutions and at different levels of governance in 2012 to elevate financial solutions to clean energy commercialization and deployment.

Solutions at the international level

The United States commits to a new 2013 through 2015 ramp-up period for financing international climate change reduction programs

Why it matters: Achieving clean energy and climate protection goals will not be possible unless the United States and other advanced nations that developed their economies on the back of fossil fuels help developing countries chart a low-carbon economic development pathway forward. The United States and the international community need to commit to ramp up funding toward such ends for 2013 through 2015, and should structure this period around helping developing nations achieve concrete objectives in line with the goal of limiting global temperature rise to 2°C (3.7°F).

In a Center for American Progress report with the Alliance for Climate Protection with analysis by Climate Advisors and Project Catalyst, "The U.S. Role in International Climate Finance,"[35] CAP recommends a blueprint for a ramp-up period of international climate investment. The report provides an analysis of how much money from developed countries would be needed in the ramp-up period through

2020 to achieve concrete objectives that will help developing countries develop sustainably. The report outlines new mitigation and adaptation goals sector by sector and specifies the increases in public and private investment necessary to achieve them.

During the ramp-up period the United States should aspire to provide 20 percent of the total funded through a mix of public and private sources. For public funding this would be $3 billion in 2013 and $5 billion in 2015. Development bank lending and private financing will also play significant roles in providing international climate change-related funding, as well as carbon markets in countries with cap-and-trade systems.

Who decides and how: The Obama administration, other advanced nations, and the United Nations Framework Convention on Climate Change, or UNFCCC, have authority over this decision, which could be made during the next UNFCCC meeting in Qatar in late 2012. In the interim, it is foreseeable that a smaller group of countries can build consensus outside of the U.N. process. The Group of 20 leading developed and developing nations offers a platform for the major economies to come to an agreement on a ramp up. The G20 has previously put climate change finance on the agenda. And with this year's theme of "green growth" for the meeting to be held in Los Cabos on June 18-19 the timing would be advantageous. Since other countries, such as the United Kingdom,[36] are already advancing their ramp-up pledges, pressure from our allies will be on the United States to respond accordingly. It would be much better to coordinate these efforts.

Deforestation accounts for 17 percent of global greenhouse gas pollution, more than all of the pollution from the global transportation sector.

Fulfill $1 billion pledge for tropical-forestry funding

Why it matters: Deforestation accounts for 17 percent of global greenhouse gas pollution, more than all of the pollution from the global transportation sector.[37] Helping developing nations reduce their emissions from deforestation and forest degradation is a critical piece of the United Nations climate change framework. At the 15th Conference of the Parties to the United Nations Framework Convention on Climate Change in Copenhagen in 2009, U.S. Department of Agriculture Secretary Tom Vilsack pledged to allocate $1 billion to this strategy, but the United States is not on track to hit that mark.

The Obama administration needs to reaffirm that pledge in 2012 to complete the allocation by 2013, without which efforts to save the world's "climate forests" would be seriously undermined.

Who decides and how: The Obama administration and Congress can move these funds in 2012 through one of several appropriations channels: either the Office of Development Assistance in the State Department, designated aid through the U.S. Agency for International Development, or an appropriation to the Department of Treasury that is then funneled into the World Bank forestry program.

Solutions at the federal level

Issue tax guidance to enable the use of Qualified Energy Conservation Bonds for clean energy projects

Why it matters: Qualified Energy Conservation Bonds may be issued by state, local, and/or tribal governments to finance clean energy projects. The American Recovery and Reinvestment Act of 2009 allocated $3.2 billion for these bonds, but they have been dramatically underutilized, with $2.7 billion in bonding authority remaining in large part because the authorizing legislation was extremely vague.[38]

But this is a problem that can be solved if the Internal Revenue Service issues temporary regulations or a Revenue Procedure on Qualified Energy Conservation Bonds. Doing so would allow issuers to raise private capital via the purchase of these bonds by mutual funds and other investors to fund clean energy projects, strengthen local economies, and create jobs.

Who decides and how: The Internal Revenue Service makes this decision. In 2011 a group of local government officials petitioned the White House to direct the IRS to issue temporary regulations on Qualified Energy Conservation Bonds,[39] but so far this effort has not been successful.

Solutions at the local, state, and regional levels

Create state green banks

Why it matters: In 2011 Connecticut became the first state to enact a green bank law, establishing the Clean Energy Finance and Investment Authority. The state combined different funding sources, most notably from its public benefit fund, to

create an initial loan pool that is now being used by the agency to attract significant private-sector investment.

A number of states have interest in replicating this model: combine scarce public resources with private-sector funds and then leverage the funds to make crucial investments in clean energy projects. In states where it's not feasible to set up a new authority, as Connecticut did, state policymakers should consider embedding a green investment function in an existing state infrastructure bank.

Who decides and how: Governors and state legislatures have the authority to establish green banks via legislation. Kentucky, for example, established a green bank in 2010 that pooled Recovery Act funds to offer a revolving loan fund to state agencies for financing energy-efficiency improvements of agency buildings. Currently the Hawaii State Legislature is considering a bill that would establish the Clean Economy Bank of the State of Hawaii, which would provide low-interest loans to clean energy companies.

Use state public benefit funds to attract private dollars and drive financing and deployment strategies

Why it matters: Twenty-two states have public benefit funds, which receive their funding from a small surcharge on electricity bills (typically known as a system-benefit charge). Public benefit funds are one of the biggest nonfederal sources of funding for clean energy projects. Traditionally they are used to fund rebates, incentives, and grants which support individual renewable energy and energy efficiency projects.

Who decides and how: Governors and state legislatures. Connecticut's use of its public benefit fund's resources to stake its new green bank shows how this can work. Indeed, public benefit funds administrators, often working in collaboration with state economic-development agencies, are using their funds to leverage private capital as part of a broader financing and deployment strategy to grow energy efficiency and renewable energy industries in their states.[40]

THE ASSOCIATED PRESS/ED ANDRIESKI

Strengthen the U.S. economy by helping U.S. industries and workers capture the economic opportunity of clean energy

The explosive growth of solar, wind, and other renewable energy industries, along with the energy-efficiency sector, may lead some to mistakenly assume that these industries make up the full extent of the clean energy economy. They do not, even though they are central to that economy. Instead, some of the biggest and most traditional sectors of the overall U.S economy are becoming cleaner and greener, whether because they want to save energy and money, build energy-saving infrastructure, respond to the greening preferences of consumers, or capture market share in a global race to produce clean energy technologies.

Perhaps nowhere is this opportunity more compelling than in the U.S. manufacturing sector, which, according to the recent BLS analysis of the 2010 labor

market, accounted for 20 percent of all private-sector jobs in Green Goods and Services.[41] Smart policy can help U.S. manufacturers reap the benefits of an economic transformation in which we make the sources of our energy rather than drill, mine, or import them from other countries. We can utilize best-practice economic-development strategies that support the healthy growth of industry clusters or sectors, and the incubation of promising local businesses. And private-sector solutions can ensure that workers have the skills to access and advance in family-supporting jobs and careers that are created by this economic transformation.

Solutions at the federal level

Ensure the federal government is greening its supply chain using Executive Order 13514

Why it matters: The federal government is the single largest energy consumer in the United States. It owns nearly 500,000 buildings, more than 600,000 vehicles, and purchases more than $500 billion per year in goods and services.[42] In 2009 President Obama signed Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance." Under E.O. 13514, federal agencies must set a 2020 greenhouse gas-pollution reduction target and a series of sustainability targets, including ensuring that 95 percent of all federal-acquisition contracts for goods and services (weapons systems are exempt) meet sustainability requirements, including energy and water efficiency, and recycled content.

E.O. 13514 also encourages the reduction of "Scope 3 emissions," or pollution from federal agencies' vendors and contractors. Given the scale of federal contracting, these goals, intended to green the federal supply chain, have significant potential to incentivize a broad range of U.S. industry sectors to gain competitive advantage from greening their business practices. And yet, more than two years after the signing of E.O. 13514, it's unclear to what extent federal agencies are making progress toward these goals.

Who decides and how: To ensure better transparency and accountability, the Office of Management and Budget should evaluate agency efforts to green their supply chains, using its existing "Scorecard on Sustainability/Energy." The Council on Environmental Quality, which helped to develop E.O. 13514 and is responsible for its implementation, should take an active role in making sure that

agencies are meeting their self-defined targets for carbon pollution reductions, and are progressing on time to meet the executive order's goals.

Develop a partnership between the U.S. Export-Import Bank and the Manufacturing Extension Partnership to support U.S. clean energy exports

Why it matters: The United States already has a positive trade balance of $1.9 billion in the solar energy sector,[43] illustrating the export market (and trade-deficit correction) potential of U.S. clean energy sectors. To fully claim the opportunity for the U.S. to excel in renewable and efficient energy exports, the federal government must do a much better job of supporting U.S.-based companies in these sectors.

Who decides and how: The Export-Import Bank, with its mission of helping finance the sale of U.S. exports to international buyers, should exercise existing authority to create a new loan program, working in coordination with the Department of Commerce's Manufacturing Extension Partnership program, which supports domestic manufacturers of clean energy products to expand their capacity, organize their supply chains, and find buyers around the world.

Expand the E3 Initiative to make manufacturers greener and more competitive

Why it matters: The federal government has a number of different programs designed to provide support to U.S. manufacturers, but too often its efforts are scattered across agencies and unfocused. The Economy, Energy and Environment, or E3, Initiative reverses that trend. E3 is a joint collaboration among five federal agencies (the Departments of Energy, Commerce, and Labor, the Environmental Protection Agency, and the Small Business Administration) utilities, local governments, and manufacturers to enhance the sustainability and competitiveness of manufacturers in local and regional economies. E3 works with manufacturers to:

- Maximize energy efficiency
- Reduce environmental wastes
- Identify opportunities for reducing carbon dioxide pollution
- Promote sustainable manufacturing practices and growth
- Reduce business costs

The program was started in 2010, with pilots in Columbus, Ohio and San Antonio, Texas and has since expanded to 19 communities that are at different levels of engagement.

Who decides and how: The five participating federal agencies and local communities should further expand the E3 program in 2012 to include at least another 10 communities.

President Obama proposed a partnership between community colleges and industry to train 2 million new workers in his 2012 State of the Union address in January.

Solutions at the local, state, and regional levels

Create industry partnerships that link economic and workforce development in states' regional economies

Why it matters: A number of states and regional economies within states are using industry cluster or sectoral approaches to grow the green economy. It's this kind of approach that President Obama proposed in his 2012 State of the Union address in January, calling for partnerships between community colleges and industry to train 2 million new workers. Examples at the state and local level include the Michigan Academy for Green Mobility, Colorado's State Energy Sector Partnership, the Southern California Water Industry Cluster, and the Smart Energy Initiative in southeastern Pennsylvania.

These initiatives focus on providing assistance and support to clean energy industries, rather than individual firms, and are characterized by intermediary-led convening of industry partnerships that involve businesses, labor unions, education and training organizations, economic and workforce developers, and other key stakeholders. The partnerships leverage and align public and private resources to engage in labor market analysis, the development of new workforce-training programs, joint marketing, technology diffusion, and other strategies.

Who decides and how: Governors, state legislatures, and local governments all can facilitate these types of partnerships. The Craig/Moffett Economic Development Partnership in Colorado's Craig County is currently working with the Colorado Department of Economic Development to explore a partnership that would focus on a range of energy industries including environmental testing activities related to natural gas development. [44]

Create green economy business incubators

Why it matters: States can support successful partnerships between early-stage clean technology companies and regional incubators that provide guidance, technical assistance, and consultation to companies to help them develop and commercialize clean energy technologies. New York is in the forefront of this trend. Since 2009 the New York State Energy Research and Development Authority has invested nearly $9 million in six clean-tech incubators through the Clean Energy Business Incubator program. The six incubators have helped create several hundred net new jobs at client startup companies and the introduction of 26 new products to serve the clean energy market. They have assisted client companies in raising $16 million in private capital and attracting $11 million in federal funding, leveraging state expenditures by a ration of more than 10-to-1.[45]

Who decides and how: Governors and state legislatures can support these partnerships, which are largely business driven. A number of states already have start-up company incubators up and running, among them Ohio and Pennsylvania—incubators that could embrace a variety of clean technologies.

Transform the waste industry to create jobs and reduce pollution

Why it matters: Transforming America's enormous waste industry into a "materials management" industry that emphasizes waste reduction, reuse, and recycling is critical for domestic job creation as well as a productive way to combat climate change. A recent Tellus Institute study estimates that increasing our national recycling rate to 75 percent would create more than 1.1 million more jobs than a business-as-usual recycling growth rate. The same study finds that the effort would lower greenhouse gas pollution by the equivalent of 515 million metric tons of CO2 pollution (the same impact as taking 50 million cars off the road). Combining recycling policies with waste-to-energy programs would reduce pollution even more.

Cities are leading this transformation. San Francisco, for example, attained a 77 percent diversion rate in 2010 with policies such as a recent ordinance requiring all residents to separate waste into recyclables, compostables, and trash, and all property owners to subscribe to a collection service.[46] And in Los Angeles advocates are pushing to change the entire system by which trash and recycling are collected—a system that today supports an unregulated, low-wage, and underperforming industry. The proposed solution is to leverage the city's purchasing power

to only award contracts to waste haulers that can achieve higher diversion rates and higher labor standards and use cleaner trucks.

States have also taken proactive steps to try and divert waste from landfills, which are a major source of methane gases, and toward recycling or waste-to-energy facilities. Maryland's Gov. Martin O'Malley supported a successful effort in 2011 to classify municipal solid waste as a "Tier 1" renewable energy source in the state's Renewable Portfolio Standard.

Who decides and how: Governors, state legislators, mayors, and city councils. Cities and counties across the United States are coming up with ways to reduce waste in their communities. The city council of Highland Park, Illinois recently adopted a goal of increasing its recycling rate to 60 percent by 2020, which was recommended by the Solid Waste Agency of Lake County's recycling taskforce. Highland Park is the 19th municipality in Lake County, Illinois to adopt the goal, which precedes a recycling mandate that likely will be enacted in 2015 for all cities in Lake County due to diminishing landfill capacity in the county.[47]

Develop the home-retrofit industry

Why it matters: One of the barriers to scaling up the home-retrofit industry is that employment within the industry is often of low quality, characterized by low wages, minimal if any benefits, and little investment in worker skills. This in turn can often result in low-quality work and the undermining of consumer confidence.

A number of state and local governments are responding to these problems in the retrofit industry by instituting "high-road" strategies that include:

- Responsible contractor and job-quality standards
- Mechanisms for worker recruitment and advancement
- The use of so-called Community Workforce (or High Road) Agreements, which include targeted/local hire strategies
- Requirements around the use of accredited training providers and workers with skill certifications.

These strategies are paired with retrofit financing to ensure that job training and job quality are connected to job creation and ongoing demand for workers.

Who decides and how: Governors, state legislatures, and local governments should implement these high-road retrofit programs. Currently programs are in place in New York (the Green Jobs/Green NY Program), Portland, Oregon (the Clean Energy Works pilot), and Massachusetts (the Green Justice Community Mobilization Initiative pilots).

Solutions in the private sector

Build pathways for recruitment and advancement in the utility industry

Why it matters: An estimated 46 percent of the utility-industry workforce (approximately 200,000 workers) may need to be replaced by 2015, in large part due to baby boomers reaching retirement age.[48] This is simultaneously a crisis for the utility industry and an opportunity to tackle today's high unemployment rate. The Center for Energy Workforce Development is a nonprofit consortium of utilities and their associations, contractors, and unions that was formed to develop solutions to the looming workforce shortage in the utility industry. The center has four strategic areas of focus:

- **Career awareness,** which targets recruitment toward young adults, veterans, women, and adults in career transition
- **Education,** which includes a framework for industry credentialing that's focused on "stackable" credentials that can be built on top of each other as part of a career pathway
- **Workforce planning,** which involves conducting annual workforce surveys to identify gaps in the workforce and in the skills of job applicants
- **Structure and support,** which develops partnerships at both regional and national levels to align, leverage, and coordinate resources and services

These areas of focus are enabling utilities to obtain skilled workers to compensate for the large number of retiring baby boomers and equip working-age adults with marketable and useful skills.

An estimated 46 percent of the utility-industry workforce (approximately 200,000 workers) may need to be replaced by 2015.

Who decides and how: Utilities, unions, and other stakeholders need to work together to address these labor shortages. FirstEnergy Corp.'s Power Systems Institute aims to create a pipeline of well-trained, well-educated utility workers via a two-year program that combines classroom learning and hands-on training. The Power Systems Institute partners with colleges and universities in Ohio, Pennsylvania, New Jersey, and West Virginia, and in the last few weeks has partnered with Pierpont Community and Technical College in Fairmont, West Virginia and Westmoreland Community College in Youngwood, Pennsylvania.[49]

THE ASSOCIATED PRESS/PAT SULLIVAN

Realize significant energy savings in all sectors of the economy

The 2009 McKinsey & Company report "Unlocking Energy Efficiency in the U.S. Economy" finds that America wastes $130 billion annually on energy costs from inefficient buildings and appliances—wasted costs that could be effectively saved using today's existing technology. The report also concludes that a comprehensive efficiency strategy, executed at scale, could reduce the nation's nontransportation end-use energy costs by more than $41.2 trillion by 2020.[50]

Wasted energy is an obvious and costly drag on the productivity and competitiveness of the U.S. economy, but equally important amid the current jobs crisis is that investing up front in energy saving technology for homes and commercial buildings will create jobs, especially in the hard-hit construction and manufacturing sectors of our economy. The same dollars that we waste today on inefficient energy use would be better spent paying the wages of skilled American construction workers and purchasing state-of-the-art advanced manufactured products made here in the United States.

But we have made progress. Recently the Obama administration's promising Advanced Manufacturing Partnership, announced in the president's 2012 State of the Union address in January, seeks to achieve energy savings in the manufacturing sector. This national effort to develop and commercialize new technologies and materials would enable manufacturers to become more energy efficient. The president's fiscal year 2013 budget requests Congress to provide the Department of Energy with new research and development capacity in support of this effort.

One of the most effective, ongoing energy-efficiency efforts is the Obama administration's Better Building Initiative to make commercial and industrial buildings 20 percent more efficient by 2020 and to accelerate private-sector investment in building efficiency in these sectors. The president has effectively used his bully pulpit to get energy savings commitments from business, union, and university leaders, among others, and federal agencies have developed news tools and strategies to help advance the goals of the Better Building Initiative. This initiative has been an impressive effort, but there is considerably more that the administration and Congress—along with state and local policymakers and private-sector leaders—can do in 2012.

In addition, more than $25 billion worth of investments spanning multiple programs were made to boost energy efficiency through the American Recovery and Reinvestment Act of 2009. Three separate programs, the Weatherization Assistance Program, Energy Efficiency Block Grant Program, and State Energy Program, collectively upgraded more than half a million buildings and employed almost 25,000 Americans in the second quarter of 2011 when the programs were fully ramped up.[51]

But Recovery Act funding is coming to an end, and subsequent legislative efforts to scale up building efficiency industries, such as the bipartisan and industry-backed Home Star and Building Star legislative proposals that would have kick-started private markets with performance-based rebates to building owners, fell short in the 111th Congress, and have not been reintroduced in the current one (although funding for Home Star is in the president's 2013 budget request). Just as with a national clean energy standard, it is unlikely that Congress will pass a comprehensive energy efficiency funding package near the scale of the American Recovery and Reinvestment Act of 2009. There are, however, several actions that should continue forward momentum on mass scale energy efficiency.

Solutions at the federal level

Initiate a Rehab-to-Rent program that converts government-owned vacant, foreclosed homes to affordable, energy efficient rentals

Why it matters: Half a million houses, many of them vacant and deteriorating, are languishing in a bloated U.S. real estate market, undermining the stability of working families and acting as a drag on a shaky economy. Nearly a quarter-million of these vacant homes are owned by the federal government. The Center for American Progress has proposed a Rehab-to-Rent initiative that establishes a set of priorities for how the Obama administration can remove a portion of these properties from the glutted for-sale market by converting them to affordable rental units.

Half a million houses, many of them vacant and deteriorating, are languishing in a bloated U.S. real estate market, undermining the stability of working families and acting as a drag on a shaky economy.

One of those priorities is to encourage economically justifiable retrofits for efficiency. Through financing and other methods, the federal government can offer incentives to property owners to conduct proven and cost-effective energy and water saving retrofits that can enhance the long-term value of their properties.[52] CAP is calling for energy-efficiency measures to be added to the pilot Rehab-to-Rent program that the administration introduced in February 2011.

Who decides and how: The Federal Housing Finance Agency is the conservator of the Freddie Mac and Fannie Mae enterprises. The FHFA should include mechanisms for financing energy efficiency in pilot programs, and ultimately in a Rehab-to-Rent program.

Increase commercial building retrofits by improving the energy-efficient commercial buildings deduction

Why it matters: The Energy Efficient Commercial Buildings Deduction, Section 179D of the Internal Revenue Code, is the most important federal tax policy tool for commercial building efficiency retrofits. And yet it has been underused because it's poorly designed to support building owners who want to retrofit existing buildings. Many straightforward statutory changes could fix this problem, lead to greater use and effectiveness of the deduction, and thus increase energy upgrades in commercial buildings. These changes should include:

- Allowing energy savings to be measured in comparison to an existing baseline
- Linking the amount of the credit to the energy savings achieved
- Allowing owners and tenants in multitenant buildings to claim deductions for the retrofitting of space within a building

On the administrative front, there also are measures that can be taken immediately to increase uptake of the tax deduction. Most importantly, the Department of Energy should issue prescriptive guidance on the use of "partial deductions" for the installation of specific systems such as energy-efficient interior lighting and heating, ventilation, and air-conditioning systems that don't require costly modeling to claim.

Who decides and how: Congress can introduce legislation that makes specific this change to the Internal Revenue Code. Legislation of this sort has not yet been introduced but there is room to include it in other pieces of legislation.

Enact new consensus appliance standards into law

Why it matters: Manufacturers and other stakeholders, such as consumer-protection advocates, have reached consensus on a range of energy conservation standards for different appliances. All that's left to do is enact them into law. The American Council for an Energy Efficient Economy, a nonprofit efficiency advocacy organization, estimates that instituting the new standards would, by 2030, save the U.S. economy approximately 470 trillion BTUs of energy each year—roughly the energy use of 2.4 million homes. That's more energy than was used by the entire state of Maine or Montana in 2008. According to these estimates the net economic savings to consumers would be $11 billion through 2030.[53]

Who decides and how: Congress. The Implementation of National Consensus Appliance Agreements Act of 2011, S. 398, sponsored by Sen. Jeff Bingaman (D-NM) with 31 co-sponsors, was introduced in February of 2011, passed by the Senate Energy and Natural Resources Committee in April of 2011, and placed on the Senate Legislative Calendar under General Orders in May 2011.

Promptly implement existing appliance standards

Why it matters: Under the law federal appliance standards already passed by Congress are periodically revised by Department of Energy rulemaking. These

rules are reviewed by the Office of Management and Budget before being finalized. Under the Obama administration DOE has aggressively pursued rulemakings for new appliance standards. Sixteen have been completed and approved, but a large number (including new standards for microwave ovens, clothes washers, and walk-in coolers and freezers) are stuck in the pipeline, delaying the opportunity for manufacturers to produce more efficient appliances to meet those standards and for consumers to realize energy savings.

Who decides and how: Office of Management and Budget can prioritize the review of rules in the pipeline for quicker implementation.

Create a "green" real estate appraisal standard to ensure that energy costs are included in mortgage underwriting

Why it matters: The real estate industry currently lacks standards to account for the energy-efficiency attributes of a building in the process of property valuation and loan underwriting. The result is an inaccurate and inconsistent assessments of buildings' value and the discouragement of investments in energy-efficiency upgrades. A green real estate appraisal standard would be a significant step toward monetizing any added value from efficient equipment and operations of buildings, which is necessary to spur greater investment in energy efficiency. The creation of such an appraisal can be spurred by both administrative and legislative action.

Who decides and how: Congress and federal financial regulatory agencies are both involved in this decision. The Sensible Accounting to Value Energy Act of 2011, S. 1737, sponsored by Sens. Johnny Isakson (R-GA) and Michael Bennett (D-CO), was introduced in 2011 and referred to the Senate Committee on Banking, Housing, and Urban Affairs. For their part, federal financial regulatory agencies can initiate a public notice and comment process to create a green appraisal standard. Legislation could require federal agencies to implement such a process.

Encourage adoption of model building codes by states

Why it matters: The adoption and enforcement of building codes is a state responsibility. But the federal government can provide strong incentives for adoption. The Recovery Act's allocation of State Energy Program funds, for example,

catalyzed a number of states to adopt, or begin the process of adopting, the most recent building-code standards.

That's why the Department of Energy should be empowered to support the development and updating of national model building energy codes for residential and commercial buildings, and to establish goals for new buildings. The department should also encourage and support the adoption by states and local governments of building energy codes that meet or exceed the national codes.

Who decides and how: Congress can empower the DOE to strengthen state level building codes. The Energy Savings and Industrial Competitiveness Act of 2011, S. 1000, sponsored by Sens. Jeanne Shaheen (D-NH) and Rob Portman (R-OH), was introduced in May 2011, passed by the Senate Energy and Natural Resources Committee in September 2011 and placed on the Senate Legislative Calendar under General Orders in the same month.

Provide leadership to ensure successful implementation of $2 billion commitment to retrofit federal buildings

Why it matters: Of the $20 billion that the federal government spent on energy in 2010, $7 billion was for energy consumption in federal buildings.[54] The federal government can save an estimated $1 billion per year on its buildings' energy use.[55] Federal agencies have historically used Energy Savings Performance Contracts for the energy-efficiency upgrades of their buildings, but the use of these contracts has lagged in recent years.[56] That's slated to change.

President Obama issued a Presidential Memorandum in December of 2011 that directs federal agencies to enter into a total of $2 billion worth of contracts within two years to retrofit their buildings and encourages the use of Energy Savings Performance Contracts to do so. Given the aggressiveness and ambition of this commitment, high-level leadership will be necessary to drive on-time implementation and completion. Unfortunately, the Presidential Memorandum is not clear about who will do so.

We recommend that the president direct Vice President Joseph Biden to oversee the implementation of this effort. The vice president is particularly well suited for the role given that his office also oversees federal agencies' implementation of

the Recovery Act programs as well as the 2010 Recovery Through Retrofit effort, which focuses on overcoming barriers to increasing the pace of energy-efficiency upgrades in the residential building sector.

Who decides and how: President Obama should request that Vice President Biden oversee this initiative.

Solutions at the local, state, and regional levels

Adopt state energy efficiency resource standards

Why it matters: Energy-efficiency resource standards require utilities to achieve energy-savings targets through programs delivered to their customers, and are thus critical drivers of major investment, energy savings, and emission reductions. For instance, in 2008 Maryland Gov. Martin O'Malley signed a law that set a statewide target of reducing per capita electricity consumption and peak energy demand by 15 percent of 2007 levels by 2015, 10 percent of which must be achieved through energy-efficiency and conservation programs provided by utilities and the remaining 5 percent through the efforts of the Maryland Energy Administration.[57]

Twenty-four states have adopted long-term (three years or more) energy-efficiency resources standards or analogous energy-savings targets.[58] A number of other states, particularly in the South, are good candidates to adopt these standards for the first time because an energy-efficiency standard would help utilities by complimenting other structural mechanisms already in place such as decoupling for public utilities, which separates a utility's profits from revenue from the sale of energy. And states that already have energy-efficiency resource standards can strengthen theirs, for example by allowing combined heat and power or waste-heat recovery to count toward their energy-efficiency resources standards or renewable energy standards.

Twenty-four states have adopted long-term (three years or more) energy-efficiency resource standards or analogous energy-savings targets

Who decides and how: Governors, state legislatures, and state public utility commissions have the authority to implement energy-efficiency resource standards or targets, and to strengthen existing ones.

Adopt energy-efficiency procurement mandates and create stakeholder advisory councils

Why it matters: In addition to requiring utilities to achieve energy savings, they can also be mandated to invest in all energy efficiency that is cheaper than supplying additional power to meet increased electricity demand. Massachusetts's Green Communities Act, passed in 2008, does exactly this, and has been hailed by Massachusetts Gov. Deval Patrick as one of the top reasons why Massachusetts is an energy-efficiency "model for the nation and the world."[59]

The American Council for an Energy Efficient Economy ranked Massachusetts as the United States's most energy efficient state in its 2011 State Energy Efficiency Scorecard, in part due to the incentives established by this and other smart state policies.[60] This direct approach has successfully rallied unlikely allies, including labor unions and low-income community activists, to support much greater investments in energy efficiency.

Massachusetts has also created an energy-efficiency advisory council of diverse stakeholders to guide the planning and decision-making process for the implementation of its energy-efficiency procurement mandate, which has the crucial benefit of generating political buy-in and support for this type of policy. States with efficiency-procurement policies are now leading the country in efficiency investments and savings levels per capita. Massachusetts's and Rhode Island's long-established utility-efficiency programs have each more than quadrupled in size in the past few years and are exceeding California's utility programs' savings by 250 percent on a per capita basis.[61]

Who decides and how: Governors and state legislatures have the authority to pass such a mandate.

Institute decoupling rules

Why it matters: Traditionally, utilities' earnings have been linked to their volume of sales, so they make more when usage increases and lose money when customers conserve or use energy more efficiently. The regulatory mechanism known as "decoupling" removes this disincentive to utility investment in energy-efficiency programs by allowing distribution utilities to recover no more and no less than an amount approved by the state's public utility commission.

States with decoupling rules for gas and/or electric utilities have roughly doubled in the last several years, bringing the total number of states with at least some form of such rules to approximately 30.[62] These rules are often complemented by incentive programs that reward utilities for achieving energy-saving goals.

Who decides and how: Governors, state legislatures, and state public utility commissions have the authority to institute such regulations. The Arizona Public Service Commission is asking its regulators to approve decoupling for regulated utilities in the state, arguing that decoupling is necessary if the company is to spend more than the $60 million it currently spends on energy-efficiency projects. Debate over decoupling Arizona's public utilities has taken place since the idea was first introduced in summer 2011, with several regulated utilities pushing the Arizona Corporation Commission to approve such regulations.[63]

Adopt and strengthen state building energy codes

Why it matters: Because there remain barriers to retrofitting existing buildings it's essential to ensure that energy-efficiency measures are installed in new buildings prior to the completion of construction. As of 2011, 29 states had either adopted or were on a clear path toward adoption of the most recent Department of Energy-determined codes for both residential and commercial buildings, up from 17 states in the previous year, while another six had adopted one of the two codes.[64] States that have not yet adopted these codes should do so, while states that have adopted them can increase compliance by funding and training code officials.

Illinois is now on track to be the first state in the Midwest to adopt the new national green building code that was approved in November 2011. The code sets mandatory baseline standards for all aspects of building design and construction, including energy and water efficiency, site impacts, building waste, and materials. The Energy Policy Act of 2005 requires states to review new building codes, but does not mandate that they be adopted. Illinois has chosen to adopt the code and will finalize it this summer and is on schedule to implement it early next year.

Who decides and how: Governors and state legislatures can take this step. In January 2010 former California Gov. Arnold Schwarzenegger announced that the California Building Standards Commission unanimously adopted the Green Building Standards Code, the first regulation of its kind in the United States requiring all new buildings in the state to be more energy efficient.

Bring commercial PACE to scale in state and metropolitan markets

Why it matters: While residential Property Assessed Clean Energy, or PACE, financing has been slowed as a result of challenges by federal mortgage regulators, commercial PACE programs are gaining traction around the country. Commercial PACE loans, which fund energy-efficiency upgrades on multifamily, commercial, and industrial properties, are secured by a lien on the property, offering low-cost financing and a highly secure investment vehicle for supporting building retrofits. Commercial PACE loans are generally pursued with the consent of the lender and are regulated differently from residential mortgages, so Commercial PACE offers none of the complexity of residential programs. Commercial PACE programs are currently active in San Francisco, Los Angeles, and Sonoma County in California.

The market for commercial PACE financing is expected to be from $2.5 billion to $7.5 billion annually by 2015,[65] and the total market potential for large commercial building retrofits is estimated by the Clinton Climate Initiative to be between $88 billion and $180 billion.[66] Clearly this is a large opportunity for job creating clean energy investments that can move forward rapidly in the absence of federal legislation. The market is growing as a result of local and state government leadership and through innovative partnerships and new investment strategies being advanced by major commercial banks, community-based lenders, and institutional investors such as public pension funds.

Who decides and how: Governors, state legislatures, local governments, and financial institutions. Programs are under development this year in Washington, D.C.; Miami-Dade County, Florida; and Sacramento, California. Major statewide commercial PACE efforts are also underway in Florida, Minnesota, California, and elsewhere around the country.

The market is growing as a result of local and state government leadership and through innovative partnerships and new investment strategies being advanced by major commercial banks, community-based lenders, and institutional investors.

Implement junior lien residential PACE programs

Why it matters: Most residential PACE programs are currently on hold due to challenges created by federal regulators. An exception is Maine where an independent trust called Efficiency Maine has designed a junior lien PACE program that provides a loan to homeowners that is secured by a lien on the property second to the lien of the mortgage lender to retrofit their homes for efficiency savings. Their program is now being rolled out as a successor to their Home Energy Savings Program, which

used Recovery Act funds (now exhausted) to provide energy upgrades to more than 3,200 homes.[67] The Maine PACE Loan Program has been developed with strong underwriting and quality assurance standards and the initial loan pool is capitalized with a $20 million grant from the DOE's Better Buildings Initiative.

Who decides and how: Governors and state legislatures.

Prioritize energy efficiency and other progressive energy programs at municipally owned utilities

Why it matters: Under current pricing schemes, utility companies generate more profit when they sell more units of energy, and thus they have little incentive to promote efficiency or the use of renewable energy systems. Municipal utilities, which are directly owned and managed by cities, have more of a public purpose and thus are more able to offer innovative programs that encourage energy efficiency and renewable energy production and use, and to set aside a portion of ratepayer funds for innovative energy projects.

An example of a municipal utility that is working hard to provide efficient, clean energy solutions to city residents is Austin Energy in Austin, Texas. The utility offers a range of energy-efficiency programs, including direct loans to consumers interested in doing residential energy-efficiency retrofits.[68] Gainesville, Florida, is also home to a municipal utility, which has implemented a feed-in tariff program that makes it among the world's leaders in installed solar energy per capita (as noted above).[69]

Who decides and how: Cities can create municipal utilities, of which there are currently about 250 in the United States,[70] though it is challenging in the current regulatory environment.[71] New Jersey's Public Service Electric & Gas recently awarded a two-year contract to Lime Energy Co. for the implementation of their Energy Efficiency Direct Install Program, which will provide $25 million worth of energy-efficiency projects for municipalities in New Jersey.[72]

Solutions in the private sector

Mobilize pension funds to invest in building efficiency

Why it matters: In an era of government budget cuts and fiscal constraints, it's particularly important to mobilize private sources of investment in renewable energy and energy efficiency. An ambitious partnership led by the AFL-CIO and the Clinton Global Initiative (with assistance from the Center for American Progress) provides a model for how private pension funds can make badly needed investments that also command a long-term, steady rate of return.

The partnership will support efforts by a wide range of money managers, asset consultants, pension funds (two of California's major pension funds have now made commitments), developers, and federal, state, and local governments to finance the construction and repair of quality public infrastructure, including energy-saving building retrofits.

Who decides and how: Pension fund managers. The AFL-CIO's goal is to commit at least $10 billion in workers' capital to this effort within five years. As part of the effort the AFL-CIO has also commited to use these infrastructure projects as a training ground for new apprenctices entering the the building and construction trades.

Prioritize energy efficiency at corporate headquarters, across stores and manufacturing plants, and in the supply chain

Why it matters: Major retailers and corporations are sometimes large enough that their actions can actually affect the U.S. energy market. Wal-Mart Stores Inc., the nation's single largest private employer, has made a commitment to energy efficiency in its stores and across its supply chain. Its focus on making its suppliers more efficient is significant, given that if the company were a sovereign nation, it would be China's fifth- or sixth-largest export market.[73]

Wal-Mart has also made a serious effort to educate its customers about the value of compact florescent, or CFL, lightbulbs over traditional incandescent bulbs, a move that has literally changed the market for CFL lightbulbs.[74] By the end of 2007 Wal-Mart surpassed its goal of selling 100 million compact florescent lightbulbs due to its effective and aggressive marketing campaign that boosted public awareness of energy savings.

Who decides and how: Private-sector companies. Google Inc. is a well-known example of a company committed to energy-use reduction to make their buildings the best places possible for their employees to work. Their recent launch of their Google Green website outlines the company's commitment to efficiency in its data centers and in its campus operations.[75]

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Reduce greenhouse gas pollution with carbon prices and clean energy standards

The failure to pass comprehensive climate and clean energy legislation in the 111th Congress (2009-2011) means that any effort to put an economywide price on carbon dioxide pollution is a political nonstarter in 2012, since the House of Representatives is now controlled by members who are opposed to this policy. Putting a price on carbon dioxide pollution would force polluters to pay for the carbon dioxide they emit into the atmosphere and would incentivize companies across the private sector to invest in clean energy alternatives to carbon-intensive fossil fuels. There will come a time, hopefully in the near future, when Congress will have to return to a reasonable debate about carbon-pricing legislation. As noted above on page 5, there is an achievable bipartisan consensus on carbon pricing suggested by the endorsement of thinks tanks from across the political spectrum for such a policy approach.

But if the increasingly dire warnings from scientists about the consequences of human-caused climate change don't convince members of Congress to prevent this looming catastrophe, perhaps damage reports from insurance companies will do so. Munich Re, the global insurance and reinsurance company, recently released a comprehensive review putting insured losses from 2011's extreme weather events at a total of $35.9 billion in the United States. This is $12 billion above the 2000-through-2010 average loss of $23.8 billion.[76] While this comparison alone does not encompass the entirety or severity of the negative effects of climate change that we face and will continue to face, it does give a sense of how inaction on climate change will continue to be costly to both the private and public sectors.

As we wait for a time when the U.S. Congress can again acknowledge the reality in front of them, 2012 offers opportunities to limit global warming pollution in other ways and at different levels of governance. Winning these solutions will significantly reduce greenhouse gas pollution, even in the absence of congressional action, and implementing them will help make the political case that such action can be taken in ways that create jobs, realize energy cost saving, and drive the development of growing industries.

Solutions at the international level

Lead efforts to phase out the production and use of hydrochlorofluorocarbons under the Montreal protocol

Why it matters: Combating climate change requires reducing more than CO2 pollution. Non-CO2 emissions account for fully half of global warming. Hydrochlorofluorocarbons, which are used as a substitute for ozone-depleting chlorofluorocarbons, are one of the most powerful greenhouse gases. The same international treaty process that effectively saved the ozone layer—the Montreal Protocol—could now be used to phase out hydrofluorocarbons, and the United States is well positioned to lead that effort. Doing so would achieve the mitigation of 100 million tons of CO2 equivalents by 2050.[77]

Who decides and how: The Obama administration and the other 196 countries that are signatories to the Montreal Protocol. The Montreal Protocol contains a provision that requires signatories to phase out hydrochlorofluorocarbons beginning in 2013, which puts the United States in a position to lead this effort.

Preserve "blue carbon" as a key climate-mitigation strategy

Why it matters: The oceans are the world's largest carbon filter. Fifty-five percent of the atmospheric carbon sequestered by living organisms is taken up at sea. Over half of that total is captured by the ocean's vegetated "blue carbon" habitats such as mangroves, salt marshes, seagrasses, and seaweed, all of which play a critical role in mitigating climate change.[78]

Despite the importance of these ocean-lurking carbon filters and the blue carbon habitats many of these sea creatures live in, at present there are no international regulatory frameworks or conventions to protect the value of coastal and marine ecosystems for sequestering carbon. The United States should work with other nations to push for acceptance of blue carbon habitats as a sequestration mechanism with value in the U.N. climate structure and in financing plans that are developed through the U.N. process.

Who decides and how: The Obama administration and the United Nations Framework Convention on Climate Change. Last November four agencies of the United Nations called for a blue carbon market as a mechanism for protecting coastal habitats. The Obama administration is well positioned to continue this push.

The oceans are the world's largest carbon filter. Fifty-five percent of the atmospheric carbon sequestered by living organisms is taken up at sea.

Solutions at the federal level

Finalize strong performance standards for regulating carbon dioxide pollution from power plants and oil refineries

Why it matters: Under a settlement agreement reached in 2010, the Environmental Protection Agency is legally required to propose and finalize (by May 26, 2012) rules that incorporate carbon dioxide pollution reductions into new performance standards for coal, natural gas, and oil fired electricity-generating power plants. EPA also made a settlement agreement to issue greenhouse gas pollution reduction standards for oil refineries by November 10, 2012.

In the absence of national legislation to limit this pollution, these standards are critical tools in the fight to avert the disastrous economic and environmental consequences of climate disruption. New performance standards for power plants are particularly important, as electricity generation accounts for 33 percent of the greenhouse gas pollution in our nation, the largest from any economic sector.[79]

Who decides and how: The EPA issued a proposed standard for new power plants on March 27, 2012, which is open for public comment for 60 days. EPA should finalize the standard without significant changes.

Use authority under the Clean Air Act to levy fees or require purchase of carbon permits by U.S.-based airlines

Why it matters: As of January 1, 2012 under the European Union's Emissions Trading System, all U.S. flights to and from Europe are subject to EU requirements to reduce global warming pollution—a 3 percent reduction from 2004-2006 levels in 2013 and 5 percent by 2020. Airlines emitting more greenhouses gases than a free allowance amount set to decline from year to year will have to purchase carbon credits on the international markets.

U.S. carriers have complied with accountancy requirements of the European Union's Emissions Trading System to date, but they haven't yet bought credits. Instead they sued, and lost, in a ruling made by the European Supreme Court in December of 2011.

There's a better way to do this. U.S. carriers can get exemption from the EU program if the United States had a comparable domestic program. The Obama administration has authority under the Clean Air Act to develop such a program, and can engage U.S. airlines in a transparent and inclusive program design process to do so. Done right, an emission-reduction program in the U.S. civil aviation sector can benefit airlines, their passengers, and the climate, while also raising revenue for international climate finance.

Who decides and how: The Obama administration can begin conversations with U.S. airlines to come up with the best alternative to paying into the EU system while also mitigating climate change.

Ask the National Academy of Sciences to analyze the environmental consequences and life-cycle pollution of hydraulic fracturing, or "fracking"

Why it matters: Natural gas is a lower-carbon source of energy that could provide a strong alternative to coal for producing baseload electricity. Natural gas is by no means a renewable resource, but as a cleaner burning, abundant, and largely domes-

tic source of energy it's a critical component of America's transition to a low-carbon economy. The rapid emergence of hydraulic fracturing, or "fracking," a process by which natural gas is extracted from shale formations, has led to dramatically increased natural gas production. The Energy Information Administration projects that by 2035 shale gas could provide nearly half of all total U.S. natural gas supply.[80]

But the rapid growth of fracking also highlights concern about possible adverse environmental consequences—concerns amplified by news accounts and various, sometimes contradictory, studies. What is required is a definitive analysis of the environmental risks of hydraulic fracturing by the National Academy of Science, the nation's pre-eminent, independent source of advice to the government on science and technology matters. The final report would serve as the basis for public and private action moving forward.

Who decides and how: President Obama could sign an executive order calling for the National Academy of Science to perform this analysis.

Solutions at the local, state, and regional levels

Strengthen the Regional Greenhouse Gas Initiative in the 2012 program review

Why it matters: The Regional Greenhouse Gas Initiative, or RGGI, is our nation's first and most advanced market-based climate program, with 10 northeastern and mid-Atlantic states involved in the program and now engaged in a political process to build on its success and make it stronger. RGGI mandates that the 10 states cap and reduce carbon emissions from their power sectors by 10 percent by 2018. The states sell carbon emissions allowances via auction in this market-based system, and invest the proceeds of the auctions in consumer benefits like energy efficiency and renewable energy production.

The success to date is significant: More than half of auction proceeds have been directed to energy-efficiency programs that lower consumers' energy bills and regional carbon dioxide pollution. Efficiency programs funded with $440 million in proceeds from the regional initiative have saved consumers $1.3 billion on their energy bills, and these savings have flowed into local economies to boost output by $1.6 billion and create 16,000 job years of employment.[81]

The 2012 program review is an opportunity to build on this success. Most important, the limit on regional emissions needs to be adjusted to reflect lasting changes to the region's electric sector. These changes, especially increased investments in energy efficiency, renewable energy, and fuel-switching to natural gas, have resulted in emissions levels that are currently 30 percent below the cap set in 2005 by the member states in the Regional Greenhouse Gas Initiative. Emission allowances now sell at the floor price of $1.89 per ton, but long-term targets should be established to deliver necessary reductions in emissions and greater investments in efficiency and renewables. This initiative continues to be popular among diverse stakeholders and policymakers, and with improvements in 2012 can demonstrate important state progress on clean energy and climate to others states and the District of Columbia.

Emission allowances now sell at the floor price of $1.89 per ton, but long-term targets should be established to deliver necessary reductions in emissions and greater investments in efficiency and renewables.

Who decides and how: State governments of the 10 states in the Regional Greenhouse Gas Initiative—Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont—should place emphasis on adjusting the emissions cap to reflect the current state of the electricity sectors in each state during the 2012 review process later this year.

Institute fracking safeguards in states

Why it matters: The 2005 Energy Policy Act removed EPA's authority to protect drinking water from the injection of fracking fluids and water under the Safe Drinking Water Act. Potentially harmful fluid chemicals are injected deep underground to release natural gas in rock formations during fracking, and industry has long objected to any rule that would force companies to reveal the chemicals used during this process. There is legislation in the U.S. Congress (the FRAC Act, S. 587 / H.R. 1084) that would reverse this sabotage of the federal government's regulatory authority, but it does not appear likely to pass in 2012. That means individual states must act.

It is essential for states to take responsibility for establishing and enforcing safeguards for shale gas production, the disclosure of chemicals used, and the discharge of water containing fracking pollutants. This past December the Colorado Oil and Gas Conservation Commission approved a rule requiring drillers to fully disclose chemicals and their concentrations used in fracking in Colorado. This stringent rule should be seen as a model for states across the country.

Who decides and how: Governors and state legislatures hold the authority to replicate rules such as the one passed in Colorado. New York is likely to complete its rules overhaul this year, in addition to several others.

Solutions in the private sector

Adopt corporate sustainability goals aimed specifically at lowering carbon emissions

Why it matters: In the absence of federal carbon pricing, businesses can take a leadership role by committing to reducing the carbon emissions of their products, facilities, processes, and supply chains. This is especially important in the current political climate, when carbon-emission reduction is seen as tantamount to financial ruin by lawmakers in Congress. Businesses can rebut that claim by continuing to bring in profits while also achieving sustainability goals.

The Gigaton Awards—presented by the Carbon War Room, a nonprofit organization founded by entrepreneur Richard Branson that leverages the work of entrepreneurs to come up with market-driven solutions to climate change—highlight the most innovative and successful of these strategies.[82] Past nominees include companies such as the German conglomerate Siemens AG, which committed to sustainability efforts not only through its renewable energy product line but also through an internal Sustainability Advisory Board that incorporates carbon-emission reductions into every business decision the company makes.

Siemens has also taken a leadership role, along with many other European companies, in calling for the European Union to step up its climate goals and move to a 30 percent carbon emissions reduction target by 2020.[83]

Who decides and how: Corporations should evaluate their carbon footprint and find opportunities to save on operating costs such as energy and transportation while also lowering overall emissions.

Develop and adopt a private industry standard for responsible fracking

Why it matters: Energy companies that consistently use best practices in shale gas production have an enormous amount to gain from the development and adoption of industry standards for responsible fracking. The implementation of industry standards for well development and construction, and other operations, could mitigate ecological damage, increase public confidence, and force "low-road" contractors out of the industry.

Many of these best practices have already been identified by the secretary of the Energy Advisory Board's Natural Gas Subcommittee, a group of advisors assembled to evaluate the role of natural gas in the United States's clean energy future and to make recommendations to improve the safety of fracking.[84] It is now incumbent on shale gas producers to take the lead in ensuring that these best practices form the foundation of standards that are accepted and put into practice by the industry itself.

Who decides and how: Private-sector energy companies have the opportunity to work with regulators such as the Securities and Exchange Commission, which has been vocal on the issue of chemical disclosure to protect investors in companies who perform fracking, to come up with industry best practices that ensure both profitability and environmental safety.

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Achieve oil savings

The U.S. Energy Information Administration forecasts that the average price of oil will increase to more than $100 per barrel in 2012.[85] This forecasted price increase reflects continued political instability in oil producing regions, Wall Street speculation, and the unavoidable, long-term trend of the global supply of oil not keeping up with increasing demand. The effect of rising oil prices on U.S. consumers is significant. Every $10-per-barrel increase in oil prices boosts gasoline prices by roughly 25 cents per gallon.[86]

Many Americans do not have the option of significantly reducing their driving or easily buying more fuel-efficient new cars, so they spend more on gasoline and less on other things, which slows our nation's economic recovery. The effect of rising oil prices on America's political debate resembles a profoundly unfunny version of Groundhog Day: once again fossil-fuel companies, their advocates in Congress, and the think tanks they fund will proclaim that the rise in gas prices is due to restrictions on oil production, and will ignore the EIA analysis which shows that expanding offshore drilling will have virtually no effect on U.S. gas prices.

Indeed, how could it, in a nation that possesses only 2 percent of the world's proven oil reserves but consumes 22 percent of its oil?[87] The United States can never drill its way to either lower gas prices or energy independence.

The real solution to oil price volatility is to wean the United States off oil to the greatest extent possible. How we do so should include big, long-term solutions, including investments in the domestic manufacture of clean, efficient vehicles and electric vehicle infrastructure, and ending the unconscionable tax giveaways to big oil companies. But in the politically constrained short term, there are also achievable solutions that can yield significant oil savings, with big economic and climate benefits.

Solutions at the federal level

Finalize rules to modernize fuel economy and carbon dioxide pollution standards for passenger cars and light trucks for model years 2017-2025

Why it matters: A proposed rule by the National Highway Traffic Safety Administration and the Environmental Protection Agency, if made final, would achieve a combined fuel economy average of 54.5 miles per gallon for cars and light trucks by 2025. The fuel economy improvements will save approximately 2.2 million barrels of oil per day by 2025, and the associated carbon dioxide pollution reductions will total 2 billion metric tons over the life of the vehicles sold in those years. Consumers who drive a model year 2025 car for its lifetime will achieve a net savings of $3,000 to $4,400.[88] And the United States will be less vulnerable to oil shocks as global demand for oil increasingly exceeds peaking oil supply. Moreover, a single national standard is more cost effective for the auto industry, as a patchwork of regulations could cause significant cost increases.

Who decides and how: The National Highway Traffic Safety Administration and the Environmental Protection Agency can build on the successful first phase of the Obama administration's program to raise fuel efficiency standards, which will raise fuel efficiency equivalency for cars made between 2012 and 2016 to 35.5 miles per gallon.

Pass a surface transportation bill that prioritizes funding for public transportation and transit-oriented development

Why it matters: Reauthorization of the Federal Surface Transportation Program is one of the biggest pieces of legislation that has a chance of being signed into law in 2012. The legislation can generate significant oil savings and carbon pollution reduction, or it can increase our reliance on fossil fuels and exacerbate global warming. It's a stark choice.

To make the right choice, Congress should pass a bill that invests in modern and affordable public transportation; heavy, light, and commuter rail; bicycling and pedestrian networks; and that includes land use incentives that reduce demand for driving by locating affordable housing near jobs and services. The legislation should require the Department of Transportation to give preference in awarding grants and loans to transportation infrastructure projects in which manufactured goods to be purchased have a high domestic content.

Who decides and how: Congress. The House of Representatives should pass H.R. 14, the House version of the Moving Ahead for Progress in the 21st Century Act, or MAP-21, which passed the Senate as S. 1813 on March 14, 2012. This comprehensive, bipartisan transportation bill focuses resources on overdue repairs to highways and bridges, and extends public-transit commuter benefits for one year. Both moves will reduce gasoline use and help families cope with high gasoline prices.

In contrast, the initial House bill, which was withdrawn when it provoked fierce bipartisan opposition, would have devastated public transportation by removing its dedicated funding, and instead relying on very unpredictable revenues from the expansion of oil and gas production into fragile lands and waters.

Congress should pass a bill that invests in modern and affordable public transportation; heavy, light, and commuter rail; bicycling and pedestrian networks; and that includes land use incentives.

Enable federal agencies to finance advanced biofuels production for the U.S. military

Why it matters: The United States and the world need sustainable alternatives to liquid fossil fuels in the transportation sector. Advanced biofuels, including cellulosic ethanol, are an appropriate substitute if safeguards are adopted. In their fiscal year 2013 budgets, the U.S. Navy and the Departments of Energy and Agriculture have requested funds toward an overall commitment of up to $510 million to co-finance the construction or retrofit of plants and refineries capable of producing significant

quantities of advanced biofuels over the next three years, which is necessary to ensure that commercial development of advanced biofuels keeps pace with the U.S. military's renewable energy goals.

Using the financing capacity and purchasing power of the federal government can also dramatically accelerate the commercialization of advanced biofuels beyond the pace possible if investment is left entirely to the private sector.

Who decides and how: Congress can appropriate these funds to invest in the infrastructure essential to develop cleaner advanced biofuels for military purposes.

Solutions at the local, state, and regional levels

Integrate smart growth and public-transit strategies

Why it matters: States can reduce oil dependence by integrating land use and transportation policies that decrease vehicle-miles traveled and promote alternatives to driving. According to the National Resources Defense Council's "Ranking States' Oil Vulnerability and Solutions for Change,"[89] 19 states have adopted smart growth measures intended to curb sprawl and reduce the associated vehicle use. Fourteen states have created an agency or other mechanism to develop and coordinate land use policies. And six states have set targets for reducing vehicle-miles traveled.

Who decides and how: Governors and state legislatures. Some states—led by New York, New Jersey, and Washington—have prioritized the funding of public transit through the allocation of state funds and/or by transferring portions of their federal highway dollars.

Pursue regional initiatives to reduce carbon dioxide pollution in the transportation sector

Why it matters: Transportation, energy, and environment agency heads from 11 northeastern and mid-Atlantic states and the District of Columbia have formed the Transportation and Climate Initiative, with the goal of developing the clean energy economy and reducing greenhouse gas pollution in the transportation

sector. It's a model for policymaking that other interconnected regions across the country should replicate.

Through their collaboration in the Transportation and Climate Initiative, 10 of those states and the District of Columbia announced the formation of the Northeast Electric Vehicle Network. The Network will promote clean vehicles and fuels and facilitate planning for and the deployment of electric vehicle charging stations and related infrastructure throughout the region.

Who decides and how: Governors and state transportation, energy, and environment agencies should take this step. In the example mentioned above, the U.S. Department of Energy awarded the New York State Energy Research and Development Authority an almost $1 million grant on behalf of the Transportation and Climate Initiative to fund the Northeast Vehicle Network. This is an example of a partnership between federal, state, and local government and the private sector to build out electric vehicle infrastructure in a region of our country where cars are densely used. In Los Angeles, the new Proposed Final 2012-2035 Regional Transportation Plan is set to go before the Southern California Association of Governments, which is the major transportation planning body for the Los Angeles metropolitan area, for approval on April 4, 2012.[90] The plan includes efforts for moving Los Angeles's large freight system towards electric or other low-emission technologies. Over time this will reduce the amount of dangerous pollution into communities that are most impacted by freight movement.[91]

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Ensure climate resiliency and restoration

Climate change is happening now and much more is coming as a consequence of the carbon dioxide pollution that is already in the pipeline. As we do everything we can to reduce carbon dioxide pollution and avert the most disastrous consequences of global warming, we must also start acting immediately to ensure that ecosystems in the United States and abroad are resilient in the face of these climate change consequences in order to reduce the vulnerability of natural systems and human communities and restore what we can of damaged ecosystems and communities. We should take these steps knowing that the scale of action necessary will only increase the longer the United States and other nations delay in putting a price on carbon.

The policy solutions that put this approach into practice are varied, but they should all be viewed as strategies that are complementary to climate change mitigation. These policy solutions also must be central to an approach to climate change that is grounded in values of justice and equity. Climate change is hitting

poor nations and poor people the hardest; those who can least afford or escape from the ensuing damage, and who bear the least responsibility for creating the crisis before us. Therefore, these kinds of policy responses should place the interests of poor nations and people front and center.

Solutions at the federal level

Restore the environment and economy of the Gulf Coast

Why it matters: The Deepwater Horizon oil catastrophe was a wake-up call to our nation and an economic, ecological, and human disaster for Gulf Coast states that were directly affected by the mammoth spill. It's past time to make a major national commitment to repair the damage done and help the region chart a new path forward that breaks from a status quo reliance on the oil-and-gas economy.

It's past time to make a major national commitment to repair the damage done and help the [Gulf Coast] region chart a new path forward that breaks from a status quo reliance on the oil-and-gas economy.

Fortunately, there's a funding source with which to do that—Clean Water Act fines paid by BP plc after the disaster, which should be used to carry out coastal restoration activities and create long-term employment opportunities to diversify the Gulf Coast's economy. Without congressional action, however, these fines go to the Oil Spill Liability Trust Fund, which is used to clean up spills when the responsible party either cannot be found or can't cover expenses.

Who decides and how: Congress. The Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States, or RESTORE, Act of 2011, S. 1400, sponsored by Sen. Mary Landrieu (D-LA) and co-sponsored by eight of the nine other Gulf Coast senators, passed out of the Senate in March as an amendment to the Surface Transportation Bill (S. 1813). The House version of the bill, H.R. 3096, sponsored by Rep. Steve Scalise (R-LA) passed out of the House in February as an amendment to the American Energy and Infrastructure Jobs Act of 2012, H.R. 7. As called for in "Beyond Recovery," a report issued by CAP and Oxfam in February 2011,[92] these bills would specifically send 80 percent of Clean Water Act fines from the BP spill back to the Gulf region for coastal and economic restoration projects.

Solutions at the local, state, and regional levels

Develop state and local climate change adaptation plans

Why it matters: State and local governments in the United States must begin planning now to adapt to inevitable results of climate change in the coming decades, including water shortages, sea-level rise, and storm surges. Fifteen states, among them Alaska, Colorado, Florida, Virginia, New York, and Maine, have started or completed a statewide adaptation plan or framework, which they initiated using executive orders, legislation, or other policy mechanisms. These plans address multiple areas, including agriculture, forestry, water resources, and biodiversity.

Local governments also are developing comprehensive climate-change adaptation plans, in communities from Milwaukee, Wisconsin to Miami Dade-County, Florida. In addition to developing comprehensive adaptation plans, or in lieu of one, many local governments are particularly focused on responding to sea level rise and storm surges. Examples include Seabrook, New Hampshire's coastal flooding adaptation plan, southeast Florida's sea-level rise adaptation plan, and North Carolina's sea-level rise assessment report.[93]

Who decides and how: State and local governments could begin commissioning comprehensive climate change assessments that seek to predict how climate change will affect their ecosystems, natural resources, and economies. The findings of these assessments should then be used to inform a climate change adaptation plan on the state or local level. Some communities where this effort is afoot are New York, Chicago, Los Angeles, and Portland, Or.

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Balance energy production with other uses on public lands and waters

The protection of America's public lands and waters is an essential part of any comprehensive and sustainable energy development strategy. Conservation can also be an essential jobs strategy. Recreation and tourism created 388,000 jobs on Interior Department lands and 224,000 jobs on Forest Service lands in 2010,[94] and U.S. coastal businesses dependent on clean oceans and beaches generated $225 billion in revenue in 2008, the last year for which complete data are available.[95]

In addition, the jobs potential of renewable energy development in our offshore waters is significant. A 2010 study by Environment America and the Sierra Club analyzed the wind power potential of offshore wind on the Atlantic coast from Massachusetts to South Carolina. It found that between 133,000 and 212,000 jobs could be created if offshore wind power was fully exploited. This is more than three times the jobs estimate from proposed future expansion of offshore oil-and-gas drilling.[96]

As we identify public areas best suited for solar, wind, or other forms of clean energy, and responsibly develop those sources, we should look ahead to a more ambitious goal. Our public lands and waters provide the Obama administration with the opportunity to model a clean energy future by increasing the production of renewable energy sources and decreasing extraction of dirty fossil fuels. Currently almost 45 percent of the country's coal is mined from public lands, while the amount of electricity generated from wind and solar is negligible. Our public lands and waters are too economically and ecologically valuable to support such an unbalanced approach to the management of our natural resources.

The excessive focus on extracting fossil fuels from lands and waters that belong to all of us is just another way we perpetuate our fossil-fuel dependency and accelerate global climate change—actions that put at risk the ecosystems that sustain our communities and comprise the commonwealth our children and grandchildren deserve to inherit. Balancing the energy portfolio for our public lands and waters is just the first step. For the long-term health and security of our lands and waters, their other essential uses must be valued along with their potential to provide natural resources for energy production.

So in 2012 we must use existing policy tools to ensure production is done safely and in the public interest. And as we look to the future, we must account for all the potential benefits of our public lands and waters, such as clean air, clean water, and recreation opportunities, and put them on par with a balanced energy portfolio so we ensure adequate protection of these natural resources for the health of our society and the economic benefit and enjoyment of future generations.

For the long-term health and security of our lands and waters, their other essential uses must be valued along with their potential to provide natural resources for energy production.

Solutions at the federal level

Department of Interior finalizes and enacts plan to safely site utility-scale solar power facilities on public lands

Why it matters: The George W. Bush administration, focused on oil-and-gas development, did not permit a single large solar project on federal land between 2000 and 2008. The Department of Interior under President Obama has sought to remedy that failure, issuing a draft plan at the end of 2011 (a much improved version of an earlier draft they released in the previous year) that sets the rules of

the road for siting utility-scale solar power facilities on public land in California, Nevada, Arizona, Utah, Colorado, and New Mexico.

Formally, the Interior Department's plan is called the Draft Programmatic Environmental Impact Statement for Solar Energy Development. It embraces the concept of solar energy zones, guiding solar projects to blocs of public land that have abundant solar resources, minimal potential for conflict and litigation, and good access to electric power transmission lines. The revised plan will give the solar industry more certainty, accelerate the process of siting and permitting projects, boost employment in the new energy economy, and provide more protection of fragile desert resources.

Who decides and how: Department of the Interior has authority over renewable energy siting on public lands. The comment period for the revised solar zones plan formally ended on January 27, 2012. The agency will review all comments received and responses will be included in the final plan expected to be published during late summer 2012.

Support the National Oceans Council to implement America's national ocean policy

Why it matters: In 2010 President Obama issued Executive Order 13547, which announced the first National Ocean Policy and the creation of a National Ocean Council tasked with its implementation. The new policy lays out a comprehensive, collaborative approach to managing our ocean resources. It will help prevent multiuse conflicts, increase efficiency, and ensure ocean economies continue to support American jobs and a high quality of life.

A keystone recommendation is support for implementing a process known as coastal and marine spatial planning. The concept recognizes that as new potential uses of ocean space become increasingly viable, our exclusive economic zone—the area of ocean space extending out to 200 miles from our shores—will grow more crowded. So in order to ensure efficient prioritization of these uses and to reduce conflicts, it makes sense to solicit input from stakeholders upfront rather than allowing a first-come, first-served land grab mentality to dictate how our invaluable ocean resources will be managed.

Doing so will require a collaborative commitment from the dozens of federal agencies across multiple departments which have a role in managing issues that affect our oceans and coasts. Although in this time of governmentwide spending cuts agencies are drawing focus inward toward their core missions, government can gain great efficiency from this cooperation. In March, the administration appointed an executive director of the National Ocean Council—a key first step and point of accountability for bringing federal agencies to the table and ensuring the American people are getting the most for their investment in our invaluable marine natural resources.

Who decides and how: The Obama administration should issue a clear directive to leaders of agencies with a role in managing ocean issues to ensure their participation on the National Ocean Council is a requirement, not an option.

Create two new national monuments: Fort Ord in California and Organ Mountains-Desert Peaks in New Mexico

Why it matters: The American Antiquities Act of 1906 allows the president to designate without congressional approval "objects of historic or scientific interest" as national monuments. The American Antiquities Act was first used by President Theodore Roosevelt in 1906, and since then has been used by 16 of 19 presidents to protect some of our nation's greatest natural and historic sites. Designating these two sites as national monuments would ensure preservation of these lands and would bring increased tourist-generated revenue into the local economies.

There are number of sites that are worthy of National Monument status and likely to receive strong political support. Two in particular rise to the top. The first is Fort Ord in California, which from World War I to the end of the Cold War was a major training ground for American soldiers, training more than 1.5 million men and women. These public lands also support a beautiful and diverse group of plant and animal communities and offer 86 miles of trails.

The second is the Organ Mountains-Desert Peaks in Doña Ana County, New Mexico, consisting of over 400,000 acres of rugged and wild areas. It includes spectacular high grasslands, prime big game and waterfowl habitat, and inspiring scenery that draws lovers of the great outdoors. It's also a landscape that is representative of southern New Mexico's diverse heritage.

Who decides and how: President Obama could exercise his right under the American Antiquities Act of 1906 to sign an executive order designating these two sites as national monuments.

Ensure the "Smart from the Start" program, which expedites offshore wind, is smart through the finish

Why it matters: Department of Interior Secretary Ken Salazar in 2010 launched the "Smart from the Start" initiative, which is designed to expedite the development of wind farms off the Atlantic coast and largely mimics a program that proved successful in the United Kingdom. The initiative analyzes data relevant to offshore wind farms, including average wind speed, water depth, wave height, seabed geology, and other factors to determine appropriate wind energy areas. In effect, these are delineated areas of the ocean where conditions are favorable to development that have been preapproved for leasing.

To date this initiative has allowed the Obama administration to walk a fine line between expediting, permitting, and ensuring all stakeholders' opinions are considered. As a result of this focus on "Smart from the Start" offshore wind, in February 2011 Secretary Salazar and Energy Secretary Steven Chu unveiled a coordinated strategic plan to accelerate the development of offshore wind energy and more than $50 million in funding opportunities to develop breakthrough offshore wind energy technology. They also identified "Wind Energy Areas for the Atlantic Coast" that showed the highest potential for offshore development and fewest conflicts with competing uses. These efforts should be continued and strengthened, in particular by promoting interagency coordination of effort where jurisdictions overlap among federal agencies.

Who decides and how: Department of Interior, Department of Energy, Bureau of Ocean Energy Management, Regulation, and Enforcement, and other federal agencies should remain steadfast in their efforts to expedite offshore wind production as outlined in the strategic plan called "A National Offshore Wind Strategy: Creating an Offshore Wind Industry in the United States."

In February 2011, the U.S. government unveiled a coordinated strategic plan to accelerate the development of offshore wind energy and allocate more than $50 million in funding opportunities to develop breakthrough offshore wind energy technology.

Certify the Powder River Basin in Wyoming as a coal production region

Why it matters: The Powder River Basin is the largest coal-producing region in the United States, supplying more than 40 percent of our domestic coal.[97] Yet the area is not certified by the Bureau of Land Management as a coal-production region, which would allow federal coal in the area to be managed in the public interest, with greater environmental review of proposed mining, and more competitive bidding for leases. Certification also would force coal companies to more accurately price their plans to transport more than $100 million tons of coal annually to the west coast to ship to Asian markets, in particular China.

Rectifying this lapse is essential. Selling federal coal at what are essentially below-market rates as long as the Powder River Basin remains uncertified subsidizes this massive coal export plan and its potentially devastating climate consequences for the globe. It is important to get the climate side of this equation right. Because the Powder River Basin coal industry is far more productive than other regions—miners there produce 10 times more coal per person than in West Virginia—this would have a limited impact on jobs.

Who decides and how: The Bureau of Land Management has sole authority to make this change through a listing in the Federal Register.

Conclusion

Successfully confronting our nation's three major crises—economic prosperity, energy security, and climate stability—requires transformative change. But even big changes can be achieved in incremental steps. The year 2012 provides the opportunity to take some of those steps by advancing solutions that produce more energy and grow the economy, reduce pollution by saving energy and dollars, and build more resilient and balanced economies and communities.

These solutions are feasible in the short term. Policymakers and administrative officials at every level of government have some role to play in 2012 to advance creative and practical program and policies that will get the United States on the right path toward a cleaner energy future. The private sector, too, has a valuable role to play: Large companies can set procurement policies that can actually change markets, while companies of all sizes can implement sustainability practices that set the gold standard for private industry action.

The solutions we lay out in this report may not seem big on their own. Some, like passing a production tax credit or encouraging the Department of Defense to use long-term power-purchasing agreements to buy renewable energy, will create or save a significant number of jobs and put large-scale projects in place in the near term. Others, like encouraging more industry partnerships and business incubators for green technology at the state and local level, are long-term economic-development plays that will strengthen these industries, and the country's overall competitiveness. Regardless of how big or ambitious the solution presented, they each put one more brick in the foundation for a bolder transformation to a clean energy economy for future generations.

However challenging the current political and economic moment, we can still make steady progress toward our climate protection and clean energy goals. And in doing so, we can provide America's middle class with more energy choices and more job opportunities at a time when both are so badly needed.

Appendix

Goal	Produce more clean energy and grow the economy			Reduce pollution by saving energy and dollars			Build more resilient and balanced economies and communities	
The Solutions Menu	Generate a significant percentage of energy in the United States from low-carbon sources	Reduce the cost of clean energy deployment by attracting private investment	Strengthen the U.S. economy by helping U.S. industries and workers	Realize significant energy savings in all sectors of the U.S. economy	Reduce greenhouse gas pollution with carbon prices and smart standards	Achieve oil savings	Ensure climate resiliency, adaptation, and restoration	Balance energy production with other uses on public lands and waters
At the federal level								
	Extend the production tax credit for wind	Issue tax guidance to enable the use of Qualified Energy Conservation Bonds for clean energy projects	Establish accountability for achievement of sustainable acquisition and green supply-chain goals under Executive Order 13514	Initiate a rehab-to-rent program that converts government-owned, vacant, foreclosed homes to affordable, energy-efficient rentals	Finalize strong performance standards for regulating carbon dioxide pollution from power plants and oil refineries	Finalize rules to modernize fuel-economy and carbon-dioxide-pollution standards for passenger cars and light trucks for model years 2017–2025	Restore the environment and economy of the Gulf Coast	Department of the Interior finalizes and enacts plan to safely site utility-scale solar power facilities on public lands
	Extend the Section 1603 Treasury Cash Grant program	Allocate more funds to new Clean Renewable Energy bonds	Develop a partnership between the U.S. Export-Import Bank and the Manufacturing Extension Partnership to support U.S. clean-energy exports	Increase commercial building retrofits by improving the energy-efficient commercial buildings deduction	Use authority under the Clean Air Act to levy fees or require purchase of carbon permits by U.S.-based airlines	Pass a surface transportation bill that prioritizes funding for public transportation and transit-oriented development		Support the National Oceans Council to implement America's national ocean policy
	Eliminate barriers in the Investment Tax Credit program for projects in combined heat and power, waste heat recovery, and offshore-wind energy		Expand the federal government's E3 Initiative to make manufacturers greener and more competitive	Enact new consensus appliance standards into law	Ask the National Academy of Sciences to analyze the environmental consequences and life-cycle pollution of hydraulic fracturing, or fracking	Enable federal agencies to finance advanced biofuels production for the U.S. military		Create two new national monuments: Fort Ord, California, and the Organ Mountains-Desert Peaks in New Mexico

Goal	Produce more clean energy and grow the economy			Reduce pollution by saving energy and dollars			Build more resilient and balanced economies and communities	
The Solutions Menu	Generate a significant percentage of energy in the United States from low-carbon sources	Reduce the cost of clean energy deployment by attracting private investment	Strengthen the U.S. economy by helping U.S. industries and workers	Realize significant energy savings in all sectors of the U.S. economy	Reduce greenhouse gas pollution with carbon prices and smart standards	Achieve oil savings	Ensure climate resiliency, adaptation, and restoration	Balance energy production with other uses on public lands and waters
	Encourage combined heat and power projects and waste heat recovery projects to control industrial pollution under new Clean Air Act standards		Use existing resources to fund more energy innovation hubs	Promptly implement existing appliance standards				Ensure the "Smart from the Start" program, which expedites offshore wind, is smart through the finish
	Form an action team at the departments of Defense and Energy to increase the use of power-purchase agreements to achieve renewable electricity goals			Create a green real estate appraisal standard to ensure that energy costs are included in mortgage underwriting				The Bureau of Labor Management certifies the Powder River Basin as a coal production region
				Encourage adoption of model building codes by states				
				Provide leadership to ensure successful implementation of $2 billion commitment to retrofit federal buildings				

Goal	Produce more clean energy and grow the economy			Reduce pollution by saving energy and dollars			Build more resilient and balanced economies and communities	
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At local, state and regional levels								
	Pass ballot initiatives that strengthen state renewable electricity standards	Create state green banks	Create industry partnerships that link economic and workforce development in states' regional economies	Adopt state energy efficiency resource standards	Strengthen the Regional Greenhouse Gas Initiative in the 2012 program review	Integrate smart growth and public transit strategies	Develop state and local climate-change adaptation plans	
	Win Clean Local Energy Accessible Now contracts in cities	Use public benefit funds to attract private dollars and drive financing and deployment strategies	Create green economy business incubators	Adopt energy efficiency procurement mandates and create stakeholder advisory councils	Institute fracking safeguards in states	Pursue regional initiatives to reduce carbon-dioxide pollution in the transportation sector		
	Require green-power purchasing by state governments		Transform the waste industry to create jobs and reduce pollution	Institute decoupling rules				
	Expedite permitting processes for offshore wind development in state waters		Develop the home retrofit industry	Adopt and strengthen state building energy codes				
				Bring commercial Property-Assessed Clean Energy financing to scale in state and metropolitan markets				

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				Implement junior lien residential Property-Assessed Clean Energy finance programs				
				Prioritize energy efficiency and other progressive energy programs at municipally-owned utilities				
In the private sector								
	Start the build-out of the Atlantic Wind Connection's offshore wind backbone		Build pathways for recruitment and advancement in the utility industry	Mobilize pension funds to invest in building efficiency	Adopt corporate sustainability goals aimed specifically at lowering carbon emissions			
	Set internal industry standards to increase renewable energy use and reduce waste, especially in energy-intensive sectors			Prioritize energy efficiency at corporate headquarters, across stores and manufacturing plants, and in the supply chain	Develop and adopt a private industry standard for responsible fracking			

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At the international level								
		Commit to a new 2013–2015 ramp-up period for U.S. financing of international climate-change reduction programs			Lead efforts to phase out the production and use of HFCs under the Montreal Protocol		Commit to a new 2013–2015 ramp-up period for international climate finance	
		Fulfill $1 billion pledge for tropical forestry funding			Preserve "blue carbon" as key climate mitigation strategy		Fulfill $1 billion pledge for tropical forestry funding	

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Endnotes

1 Angus McCrone, "Solar surge drives record clean energy investment in 2011," Bloomberg New Energy Finance, January 12, 2012, available at http://bnef.com/PressReleases/view/180.

2 Bureau of Labor Statistics, Employment in Green Goods and Services – 2010 (U.S. Department of Labor, 2012), available at http://www.bls.gov/opub/ted/2012/ted_20120327.htm

3 Mark Muro, "Sizing the Clean Economy: A National and Regional Green Jobs Assessment" (Washington: The Brookings Institution, 2011), available at http://www.brookings.edu/reports/2011/0713_clean_economy.aspx.

4 Tony Dutzik and others, "The Way Forward on Global Warming: Reducing Carbon Pollution Today and Restoring Momentum for Tomorrow by Promoting Clean Energy" (Boston: Environment America, 2011), available at http://www.environmentamerica.org/sites/environment/files/reports/The-Way-Forward-on-Global-Warming.pdf.

5 Heidi Shierholz, "A solid step in the right direction for the labor market" (Washington: Economic Policy Institute, 2012), available at http://www.epi.org/publication/december-2011-jobs-picture/.

6 Heidi Shierholz, "Nearly three years of a job-seekers ratio above 4-to-1" (Washington: Economic Policy Institute, 2012), available at http://www.epi.org/publication/job-seekers-ratio-above-4-to-1/.

7 Lawrence Mishel, "Huge disparity in share of total wealth gain since 1983" (Washington: Economic Policy Institute, 2011), available at http://www.epi.org/publication/large-disparity-share-total-wealth-gain/.

8 Daniel J. Weiss and others, "Big Oil's Banner Year Higher Prices, Record Profits, Less Oil" (Washington: Center for American Progress, 2012), available at http://www.americanprogress.org/issues/2012/02/big_oil_banner_year.html.

9 National Climatic Data Center, "Billion Dollar U.S. Weather/Climate Disasters" (2011), available at http://www.ncdc.noaa.gov/oa/reports/billionz.html.

10 Joseph Romm, "Desertification: The next dust bowl," Nature, October 2011, available at http://www.nature.com/nature/journal/v478/n7370/full/478450a.html.

11 Justin Gillis, "Carbon Emissions Show Biggest Jump Ever on Record," The New York Times, December 4, 2011, available at http://www.nytimes.com/2011/12/05/science/earth/record-jump-in-emissions-in-2010-study-finds.html.

12 International Energy Agency, "World Energy Outlook 2012," available at http://www.iea.org/weo/.

13 Peter G. Peterson Foundation, "The 2011 Fiscal Summit: The Solutions Initiative" (2011), available at http://pgpf.org/solutionsinitiative.

14 Kate Gordon and others, "Rising to the Challenge: A Progressive U.S. Approach to China's Innovation and Competitiveness Policies" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/01/china_innovation.html. See also Kate Gordon and others, "Out of the Running? How Germany, Spain, and China Are Seizing the Energy Opportunity and Why the United States Risks Getting Left Behind" (Washington: Center for American Progress, 2010), available at http://www.americanprogress.org/issues/2010/03/out_of_running.html.

15 Richard W. Caperton and others, "Helping America Win the Clean Energy Race: Innovating to Meet the President's Goal of 80 Percent Clean Electricity by 2035" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/02/ces_brief.html.

16 Kate Gordon, "Power for the People; Energy for the 99 Percent" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/11/energy_99_percent.html.

17 Google.org (using McKinsey & Company's US Low Carbon Economics Tool), "The Impact of Clean Energy Innovation: Examining the Impact of Clean Energy Innovation on the United States Energy System and Economy" (2011), available at http://www.google.org/energyinnovation/.

18 American Wind Energy Association, "U.S. Wind Industry Fourth Quarter 2011 Market Report" (2012), available at http://www.awea.org/learnabout/publications/reports/upload/4Q-2011-AWEA-Public-Market-Report_1-31.pdf.

19 Ryan Wiser and Mark Bolinger, 2010 Wind Technologies Market Report (U.S. Department of Energy, 2011), available at www1.eere.energy.gov/wind/pdfs/51783.pdf.

20 Navigant Consulting, Inc., "Impact of the Production Tax Credit on the U.S. Wind Market, Prepared for the American Wind Energy Association" (2011), available at http://www.awea.org/learnabout/publications/reports/upload/AWEA-PTC-study-121211-2pm.pdf.

21 Solar Energies Industry Association, "Solar Policies: 1603 Treasury Program" (2011) available at http://www.seia.org/cs/solar_policies/1603_treasury_program.

22 Oak Ridge National Laboratory, "Combined Heat and Power: Effective Energy Solutions for a Sustainable Future" (2008), available at: http://info.ornl.gov/sites/publications/files/Pub13655.pdf.

23 Michael Murphy and Francine Sevel, "The Role of Utility Consumer Advocates in a Restructured Regulatory Environment" (Columbus: The National Regulatory Research Institute at the Ohio State University, 2004), available at http://www.nrri.org/pubs/consumeraffairs/04-12.pdf.

24 Chandra Shah, Power Purchase Agreements (U.S. Department of Energy, 2011) available at http://www1.eere.energy.gov/femp/pdfs/afo_ppa_pres.pdf.

25 More about Michigan Energy, Michigan Jobs initiative can be found at http://mienergymijobs.com/Home.aspx.

26 Martin O'Malley, "Maryland Offshore Wind Energy Act of 2012 Testimony," Testimony before the House Economic Matters Committee, February 23, 2012, available at http://www.governor.maryland.gov/blog/?p=4371.

27 Richard W. Caperton and others, "CLEAN Contracts: Making Clean Local Energy Accessible Now; Bringing More Renewable Electricity into the Marketplace" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/01/clean_contracts.html.

28 Ibid.

29 The United States Conference of Mayors, "Clean Energy Solutions for America's Cities" (2011), available at: http://www.usmayors.org/cleanenergy/report.pdf.

30 Clean Coalition, "Palo Alto Leading the Charge on CLEAN Programs," Press release, March 6, 2012, available at http://www.clean-coalition.org/press-releases-and-advisories/2012/3/6/palo-alto-leading-the-charge-on-clean-programs.html.

31 Simon Mahan and others, "Untapped Wealth: Offshore Wind Can Deliver Cleaner, More Affordable Energy and More Jobs Than Offshore Oil" (Washington: Oceana, 2010), available at http://oceana.org/sites/default/files/Offshore_Wind_Report_0.pdf.

32 American Council for an Energy Efficient Economy, "Industrial Sector: Manufacturing and Agriculture," available at http://www.aceee.org/portal/industrial.

33 American Forest and Paper Association, "Reducing our Greenhouse Gas Emissions" available at: http://www.afandpa.org/whatwebelieve.aspx?id=1900.

34 See here for more information on Google's clean energy targets at http://www.google.com/green/the-big-picture.html

35 Andrew Stevenson and others, "The U.S. Role in International Climate Finance: A Blueprint for Near-Term Leadership" (Washington: Center for American Progress, 2010), available at http://www.americanprogress.org/issues/2010/12/us_role_climate_finance.html.

36 United Kingdom Department for International Development, "UK Fast Start Climate Change Finance," available at http://www.dfid.gov.uk/Documents/publications1/fast-start-climate-change.pdf,

37 The Commission on Climate and Tropical Forests, "Protecting the Climate Forests: Why reducing tropical deforestation is in America's vital national interest" (2009), available at http://www.climateforestscommission.org/documents/cctf-report-summary.pdf.

38 Maria Gallucci, "Coalition Petitions Obama to Unlock Billions in Unspent Clean Energy Bonds," Inside Climate News, December 2011, available at http://insideclimatenews.org/news/20111201/consortium-petitions-obama-clean-energy-bonds-green-construction-energy-efficiency-schools-qecb-we-the-people.

39 Applied Solutions, "We the People Partnership for Clean Energy Jobs," available at http://appliedsolutions.org/QECB.

40 Lewis Milford and others, "Leveraging State Clean Energy Funds for Economic Development" (Washington: Brookings-Rockefeller Project on State and Metropolitan, 2012), available at http://www.brookings.edu/~/media/Files/rc/papers/2012/0111_states_energy_funds/0111_states_energy_funds.pdf.

41 Bureau of Labor Statistics, Employment in Green Goods and Services – 2010.

42 The White House Council on Environmental Quality, "Federal Leadership in Environmental, Energy and Economic Performance - EXECUTIVE ORDER 13514," available at: http://www.whitehouse.gov/administration/eop/ceq/initiatives/sustainability.

43 GTM Research, "U.S. Solar Energy Trade Assessment 2011: Trade Flows and Domestic Content for Solar Energy-Related Goods and Services in the United States" (Washington: Solar Energy Industries Association, 2011), available at http://www.seia.org/galleries/pdf/GTM-SEIA_U.S._Solar_Energy_Trade_Balance_2011.pdf.

44 Joe Moylan, "EDP considering regional partnerships for federal grant," Craig Daily Press, March 26, 2012, available at http://www.craigdailypress.com/news/2012/mar/21/edp-considering-regional-partnerships-federal-gran/.

45 Devashree Saha, "N.Y.'s NYSERDA and the State Role in Fostering Cleantech Innovation," The New Republic, July 29, 2011, available at http://www.tnr.com/blog/the-avenue/92912/ny%E2%80%99s-nyserda-and-the-state-role-in-fostering-cleantech-innovation.

46 Tellus Institute with Sound Resource Management, "More Jobs, Less Pollution: Growing the Recycling Economy in the U.S." (New York: National Resource Defense Council, 2011), available at http://docs.nrdc.org/globalwarming/files/glo_11111401a.pdf.

47 Charles Berman, "Highland Park City Council backs recycling mandates," ChicagoSunTimes.com, March 5, 2012, available at http://highlandpark.suntimes.com/news/11083679-418/highland-park-city-council-backs-recycling-mandates.html

48 Center for Energy Workforce Development, "Gaps in the Energy Workforce Pipeline" (2010), available at http://www.cewd.org/surveyreport/2009SurveyExecSummary.pdf.

49 Sys-Con Media, "FirstEnergy to Train Tomorrow's Line Workers and Substation Electricians," March 27, 2012, available at: http://www.sys-con.com/node/2222308.

50 McKinsey & Company, "Unlocking energy efficiency in the US economy" (2009), available at http://www.mckinsey.com/Client_Service/Electric_Power_and_Natural_Gas/Latest_thinking/Unlocking_energy_efficiency_in_the_US_economy.

51 Bracken Hendricks and Jorge Madrid, "A Star Turn for Energy Efficiency Jobs; Energy Efficiency Must Have a Starring Role in Putting America Back to Work" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/09/energy_efficiency_jobs.html.

52 Alon Cohen and others, "Rehab-to-Rent Can Help Hard-Hit Communities and Our Economy; What to Consider When Converting Vacant Foreclosed Homes into Affordable, Energy Efficient Rentals" (Washington: Center for American Progress, 2012), available at http://www.americanprogress.org/issues/2012/01/rehab_to_rent.html.

53 Steve Nadel, communication with the authors, February 9, 2012.

54 Energy Efficiency and Renewable Energy, Federal Energy Management Program, Sustainable Buildings and Campuses (United States Department of Energy) available at http://www1.eere.energy.gov/femp/program/sustainable_buildings.html.

55 Alliance to Save Energy, "Energy Efficiency Policies for the Utility Sector" (2006), available at http://ase.org/sites/default/files/file_UtilityFactSheet.pdf.

56 Energy Savings Performance Contracts, or ESPC, are a contracting method in which private contractors provide capital, implement efficiency projects, and maintain them in exchange for a portion of the achieved energy savings, which the contractor guarantees.

57 Center for Climate and Energy Solutions, "Energy Efficiency Standards and Targets" (2011), available at http://www.c2es.org/what_s_being_done/in_the_states/efficiency_resource.cfm.

58 Michael Sciortino and others, "The 2011 State Energy Efficiency Scorecard" (Washington: American Council for an Energy-Efficient Economy, 2011), available at http://www.aceee.org/research-report/e115.

59 Ibid.

60 Ibid.

61 Sam Krasnow, communication with the authors, February 9, 2012.

62 Ibid.

63 Lesley Wright, "Follow-up to Town Hall in Surprise addresses energy issues," azcentral.com, March 26, 2012, available at http://www.azcentral.com/community/surprise/articles/2012/03/21/20120321surprise-town-hall-addresses-energy-issues.html.

64 Sam Krasnow, communication with the authors, February 9, 2012.

65 Pike Research, "U.S. Energy Service Company Market," January 6, 2010, available at: http://www.pikeresearch.com/research/the-u-s-energy-service-company-market.

66 Scott Henderson and John Christmas, "Financing Retrofits in Large Commercial Buildings through PACE Loans" (Clinton Climate Initiative and Hannon Armstrong Capital, 2010), available at http://www.less-en.org/_assets/client/files/1410-PACE%20Funding%20for%20Large%20Commercial%20Buildings%20-%20Mar%202010.pdf.

67 Efficiency Maine, "Home Energy Savings Program," available at http://www.efficiencymaine.com/at-home/hesp_program.

68 Austin Energy, "Residential Energy Efficiency," available at http://www.austinenergy.com/energy%20efficiency/reslndex.htm.

69 John Farrell, "Gainesville, Fla. Becomes a world leader in solar power," Grist.org, January 8, 2012, available at http://grist.org/solar-power/2012-01-06-gainesville-florida-becomes-a-world-leader-in-solar/.

70 See a full list of municipal utilities here: http://www.utilityconnection.com/page2e.asp#muni_util.

71 Laura Snider, "Fla. Town to Boulder: Starting a municipal utility is hard but possible," Daily Camera, July 23, 2010, available at http://www.dailycamera.com/ci_15589661?IADID=Search-www.dailycamera.com-www.dailycamera.com.

72 "Lime Energy Awarded Energy Efficiency Direct Install Program Contract for PSE&G," The New York Times, March 20, 2012, available at http://markets.on.nytimes.com/research/stocks/news/press_release.asp?docTag=201203200900BIZWIRE_USPRX____BW5230&feedID=600&press_symbol=97412.

73 Steven Mufson, "In China, Wal-Mart presses suppliers on labor, environmental standards," The Washington Post, February 28, 2010, available at http://www.washingtonpost.com/wp-dyn/content/article/2010/02/26/AR2010022606757.html?hpid=topnews.

74 Michael Barbaro, "Wal-Mart Puts Some Muscle Behind Power-Sipping Bulbs," The New York Times, January 2, 2007, available at http://www.nytimes.com/2007/01/02/business/02bulb.html?pagewanted=all.

75 Google Green website can be found at http://www.google.com/green/efficiency/#campus-operations.

76 Insurance Information Institute, "U.S. Natural Catastrophes," available at http://www.iii.org/facts_statistics/catastrophes-us.html.

77 Institute for Governance and Sustainable Development, "The Need for Speed: Reducing Non-CO2 Climate Forcers and Perfecting Carbon-Negative Strategies" (2011), available at http://igsd.org/documents/TalkingPoints_12Jan11.pdf.

78 United Nations Environment Program, GRID-Arendal, "Blue Carbon - The Role of Healthy Oceans in Binding Carbon" (2009), available at http://www.grida.no/publications/rr/blue-carbon/.

79 Environmental Protection Agency, "U.S. Greenhouse Gas Inventory," available at http://www.epa.gov/climatechange/emissions/usgginventory.html.

80 Melanie Hart and Daniel J. Weiss, "Making Fracking Safe in the East and West; Environmental Safeguards on Shale Gas Production Needed as China Begins Development" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/10/china_fracking.html.

81 Paul J. Hibbard and others, "The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States" (Washington: Analysis Group, 2011), available at http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Economic_Impact_RGGI_Report.pdf.

82 More information about the Carbon War Room's Gigaton Awards is available at http://www.gigaton-awards.com/.

83 The Climate Group, "Join the EU Business Call for 30% Emissions Reduction by 2020," available at: http://www.theclimategroup.org/EU-30-per-cent-initiative.

84 The SEAB Shale Gas Production Subcommittee, "Ninety-Day Report" (2011), available at http://www.shalegas.energy.gov/resources/081111_90_day_report.pdf.

85 Xinhua, "2012 oil price to be about $100 per barrel: EIA," Global Times, January 11, 2012, available at http://www.globaltimes.cn/NEWS/tabid/99/ID/691685/2012-oil-price-to-be-about-100-per-barrel-EIA.aspx.

86 Betty Joyce Nash, "Volatility at the Pump" (Richmond: Federal Reserve Bank of Richmond, 2011), available at http://www.richmondfed.org/publications/research/region_focus/2011/q3/pdf/feature6.pdf?WT.si_n=Search&WT.si_x=3.

87 Kate Gordon, "Creating American Jobs by Harnessing Our Resources," Testimony before the House Committee on Natural Resources, September 8, 2011, available at http://www.americanprogress.org/issues/2011/09/gordon_testimony.html.

88 National Highway Traffic Safety Administration and Environmental Protection Agency, NHTSA and EPA Propose to Extend the National Program to Improve Fuel Economy and Greenhouse Gases for Passenger Cars and Light Trucks (2011), available at: http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/2017-25_CAFE_NPRM_Factsheet.pdf.

89 Deron Lovass and David Gardiner & Associates, LLC, "Fighting Oil Addiction; Ranking States' Oil Vulnerability and Solutions for Change," (Washington: Natural Resources Defense Council, 2009), available at http://www.nrdc.org/energy/states/files/states.pdf.

90 Adrian Martinez, "New Vision for Freight in Los Angeles: Zero Emissions Technologies from the Ports to the Railyards," Natural Resources Defense Council, March 22, 2012, available at http://switchboard.nrdc.org/blogs/amartinez/new_vision_for_freight_in_los.html.

91 Ibid.

92 Kate Gordon and others, "Beyond Recovery: Moving the Gulf Coast Toward a Sustainable Future," (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/02/beyond_recovery.html.

93 "Georgetown Climate Center," available at http://www.georgetownclimate.org/adaptation/state-and-local-plans.

94 Jessica Goad and others, "The Jobs Case for Conservation: Creating Opportunity Through Stewardship of America's Public Lands" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/issues/2011/09/public_lands.html.

95 Michael Gravitz, "Protect America's Waters, Too Much At Stake: Don't Gamble With Our Coasts" (Boston: Environment America Research & Policy Center, 2010), available at http://www.environmentamericacenter.org/sites/environment/files/reports/Gamble-Report11-5--EA-and-SC-logos-2_0.doc.

96 Ibid.

97 Department of Energy and Energy Information Agency, Report No: DOE/EIA-0584 (2010) Coal Production and Number of Mines by State and Mine Type, 2010, 2009 (2011), available at http://www.eia.gov/coal/annual/pdf/table1.pdf.

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