Section III

Key Themes of the Obama Administration’s Energy Policy as It Relates to Land Use in the U.S.¹

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BACKGROUND

In his February 24th speech to a joint session of Congress, President Barack Obama outlined his vision for the economic recovery of the United States (Obama, 2009). He gave the nation’s energy infrastructure top billing, before healthcare and education. The President claimed that the country best able to capture the promise of renewable energy would lead the world in the 21st century. In the last year, energy infrastructure has gone from a somewhat obscure topic to an acknowledged issue of national importance. A new energy system seems to hold a special place in the aspirations of the President for its ability to address simultaneously three key challenges: the nation’s employment and economic woes; climate change; and independence from foreign oil.

Many on the President’s staff have been quoted offering variations on the idea that “a crisis is a terrible thing to waste.” It is clear that the Obama Administration intends to push forward a major renewable energy agenda despite (or because of) the international economic crisis.

Congress also is pursuing action on energy and climate change. Rep. Henry Waxman (D-CA), Chairman of the House Energy and Commerce Committee, and Rep. Edward Markey (D-MA) have introduced a draft cap-and-trade proposal that passed Waxman’s committee on May 21, titled H.R. 2454, the American Clean Energy and Security Act (House Committee on Energy and Commerce, summary 5/21/09). Though there is “no comparably comprehensive” bill in the Senate (Galbraith, 5/22/09), Senate Majority Leader Harry Reid is expected to bring a combined energy and climate bill to the Senate floor in August 2009 (Deutsche Bank, 2009). The future of U.S. energy infrastructure policy will likely depend on the combination of Congressional and Presidential proposals.

¹The state of national energy and climate policy in the spring of 2009 is changing rapidly. Different sections of this paper have been outdated throughout the writing process and many portions are likely to be out of date by the time the paper is read.
Within the executive branch, there is also a plan to promote land conservation goals. The new administration is bringing leaders from the conservation community into the Department of Interior and other agencies. These leaders are faced with the challenge of managing threats and opportunities for land conservation within the push for new energy infrastructure.

**BROAD GOALS OF THE OBAMA ADMINISTRATION’S ENERGY POLICY**

The broad goals of the Administration’s energy policy (Obama, 2009; Whitehouse.gov, 2009) are the following:

1. Double the U.S. supply of renewable energy by 2012.
2. Install thousands of miles of transmission lines and modernize the electric grid.
3. Implement a market-based cap-and-trade system for carbon emissions.
4. Create jobs and lower bills nationwide through improved energy efficiency.
5. Increase fossil fuel production in the U.S.
6. Invest in low-carbon energy technologies, including carbon capture and storage.

These goals and their attendant programs, along with some relevant components of Congressional legislation, are discussed below.

**Goal 1: Double the supply of renewable energy by 2012**

The renewable sources on which the Administration focuses are: wind, closed-loop biomass, open-loop biomass, geothermal, small irrigation, hydropower, landfill gas, marine renewable, and trash combustion facilities (ACORE, 2009). The President’s strategy is to increase research and development in renewable energy technology and to increase financial incentives for renewable energy deployment. In an initial step with implications for land conservation, the 2010 budget allocates $50 million to the Department of the Interior for the studies necessary to increase renewable energy production on Federal lands (OMB, 2009). Other major efforts are summarized below.

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**What is the difference between closed-loop and open-loop biomass?**

Closed-loop biomass refers to vegetative material planted specifically for use as a source of electricity. Open-loop biomass includes most other types of plant-based energy sources, including livestock wastes and solid cellulosic materials derived from forests, land-clearing debris and trimmings, construction and industrial wood wastes, and agricultural products. It does not include municipal solid waste or paper (Oregon.gov).
**U.S. DOE Loan Guarantee Program**

The President has several initiatives to double the supply of renewable energy by 2012. The first uses a program established by the Energy Policy Act of 2005 (EPAct 2005) to guarantee loans for advanced energy technology production. The first round of applications for this guarantee were accepted in 2006 for projects focused on transmission and electricity reliability, energy efficiency and pollution control, alternative fuel vehicles, carbon capture and storage, and renewable technologies—wind, hydropower, solar, hydrogen, and biomass (US DOE Loan Guarantee Program). The DOE guaranteed its first loan on March 20, 2009, in the amount of $535 million, to Solyndra, Inc. for production expansion of a proprietary photovoltaic system (Broder, 2009). The program uses $6 billion to guarantee approximately $60 billion in loans (Deutsche Bank, 2009).

**Extending production and investment tax credits**

The production tax credit (PTC) was initially created through the Energy Policy Act of 1992 to reward companies producing energy from renewable sources. It initially applied only to wind and some bioenergy sources, but has been extended several times since then, most recently through the October 2008 Emergency Economic Stabilization Act (EESA) (Union of Concerned Scientists).

The American Recovery and Reinvestment Act (ARRA), passed early in 2009, extended the existing production tax credit for companies producing energy from wind and refined coal through 2012, and for geothermal, small-scale hydroelectric, landfill gas, trash combustion, and bioenergy through 2013 (Deutsche Bank, 2009). Under the PTC, wind, geothermal, and dedicated-crop or closed-loop bioenergy generators receive 1.9 cents/kWh for the first ten years of energy production. Companies producing energy through open-loop bioenergy, small hydroelectric, landfill gas and trash combustion receive a smaller benefit (Union of Concerned Scientists).

The EESA also extended another tax credit, the Investment Tax Credit (ITC), originally established in 2005 for commercial and residential solar energy systems. EESA changed the residential cost cap to provide greater benefits for larger systems (Union of Concerned Scientists). ARRA improves upon the EESA by allowing ITC credits to be swapped for PTC credits, and by providing grants through the Treasury Department for up to 30% of project costs in lieu of investment tax credits (ACORE, 2009). Both of these measures allow companies to receive financial assistance up-front, which is of critical importance during the financial crisis.

**Renewable Energy Bonds**

EPAct 2005 created the Clean Renewable Energy Bonds (CREBs) program to incent investor-owned utilities and private developers to provide renewable energy (NRECA, 2006). ARRA added to the program, dividing $1.6 billion equally among three types of players: public power providers; electric cooperatives; and state/local/tribal governments. ARRA directs the bonds toward the familiar set of
renewable energy sources: wind; closed-loop biomass; open-loop biomass; geothermal; small irrigation; hydropower; landfill gas; marine renewable; and trash combustion facilities (ACORE, 2009).

**Advanced Energy Manufacturing Tax Credits**

To stimulate business investment in clean energy technology, the ARRA provides $2 billion in tax credits for manufacturing capacity. These credits cover 30% of business investment that will lead to increased production of components for renewable energy, carbon capture and storage, hybrid/electric car energy storage systems, and grid systems that enable increased renewable energy supply (ACORE, 2009).

**Helping farmers participate in the clean energy economy**

The 2010 budget allocates $20 billion for the Department of Agriculture to invest in rural small businesses, telecommunications infrastructure, and renewable energy systems. It specifies that USDA will help farmers realize benefits from carbon credits and includes an increase of $250 million in loans and grants for biofuels and wind power installation (OMB, 2009).

**Goal 2: Increasing and modernizing electricity transmission infrastructure**

The Administration intends major expansion of and improvements to the national electric grid. The chief tools it will employ are: building new high-voltage transmission lines; creating a National Infrastructure Bank; investing in the smart grid; and creating a massive infrastructure workforce training program.

**Building new high-voltage transmission lines for renewable energy**

The Obama administration’s 2010 budget proclaims that, “in order to bring significant amounts of renewable energy online, tens of thousands of miles of new, high-voltage national transmission is necessary” (OMB 2009). The Department of Energy budget adds to the $11 billion for transmission improvements and expansion included in the Recovery Act (OMB 2009). In addition, Senate Majority Leader Harry Reid is pushing a proposal to speed the approval of new power lines by creating broader Federal siting powers in newly designated Renewable Energy Zones (Bloomberg.com). The future of this proposal is unclear at the time of this writing.

Increasing renewable energy transmission will take considerable sums of money. In early February 2009, a major grid planning effort was released. Titled “the Joint Coordinated System Plan,” it claimed that $80 billion will be needed in new transmission infrastructure to allow the Eastern Interconnection, which supplies power to most of the eastern U.S. and parts of Canada, to obtain 20% of its energy from wind by 2024 (Energy Current, 2009, and Bloomberg, 2009).

**National Infrastructure Bank**

The primary funding mechanism that President Obama has proposed for transmission line construction and expansion is a new National Infrastructure Bank.
His budget asks for $5 billion per year for the bank from 2010 through 2014, and includes it in the list of “major agencies” along with the EPA, Social Security Administration, GSA, and NASA. In addition to investing federal monies, the bank will coordinate public and private investment in projects of key regional or national economic importance (OMB, 2009).

**Developing the smart grid**

Toward the end of the 2008 campaign season the candidate Obama spoke more regularly about the potential for developing a smarter electricity grid. As President, he has made this a distinct part of his energy strategy. The 2010 budget includes unspecified sums for deploying “millions of Smart Meters—a key step to a Smart Grid” (OMB, 2009).

Just what is a “smart grid?” The phrase refers to a basket of technologies that capitalize on the convergence of the internet, real-time sensing technology, and computation to allow the electricity grid to communicate between nodes, heal itself, and manage loads far more efficiently. It will give grid operators and users greater control and flexibility and will enable them to observe and analyze the grid at both greater and more granular levels of detail than before (Benedykcinski et al., 2008).

A smart grid will not result from building more power lines. More high voltage lines constitute what could be thought of as a stronger grid, but not a smarter one. The first smart grid components President Obama’s budget targets are smart meters. Such devices will allow for real-time pricing at the residential level, so that users can save money by switching electricity use to off-peak times. Through this and many other technologies, a smarter grid has the potential to increase energy efficiency and reliability (Benedykcinski et al, 2008).

A major driver for deploying smart grid technologies is to improve conditions for distributed energy generation by making it easier and more profitable for small producers such as homes and small companies to tie in on-site generation capacity to the grid. The May 21st draft of the Waxman-Markey bill includes distributed generation incentives. It proposes that large energy suppliers receive one efficiency/renewable generation credit per MWh generated, while small generators receive three (House Committee on Energy and Commerce, 5/21/09).

Some smart grid technologies could benefit land conservation. Greater distribution of energy supply may simultaneously increase the amount of renewable energy used and lower the growth in the amount of fossil fuel energy demanded. It may also reduce average distances between electricity generators and end users, thereby decreasing new demand for transmission capacity.

**Investing in workforce training**

To help install the infrastructural components described above, President Obama has set aside $100 million for workforce development (OMB 2009). It is unclear at this point how the training programs will be structured.
Goal 3: Implement a market-based cap-and-trade system for carbon emissions

Reducing CO₂ emissions

The crown jewel of President Obama’s energy policy, and likely the most challenging part to implement, is of course a federal cap-and-trade system to reduce carbon dioxide emissions to “slow global warming.” The administration’s stated objective is to reduce emissions 14% below 2005 levels by 2020 and 83% below by 2050 (OMB, 2009). The Waxman-Markey bill reflects and even pushes slightly beyond the President’s goals. It calls for reductions of 20% by 2020, 42% by 2030, and 83% by 2050 (House Committee on Energy and Commerce, summary 5/21/09).

A cap-and-trade system generally works by a governmental entity establishing a maximum amount of a substance that can be emitted by companies, then providing permits for discrete units of substance emission. These permits may be sold by companies producing less of that substance than their permits allow, to those producing more of it. This keeps total emissions in check while creating a flexible, incentivized path to for companies to reduce emissions.

Distributing permits

Originally, the administration planned to distribute 100% of carbon dioxide emission permits by auction as opposed to granting some permits for free based on companies’ historical emission levels. This would eliminate a perverse incentive for companies to raise their pollution levels before the cap-and-trade regime takes effect in order to claim more free permits. As the budget put it, a 100% auction would “ensure that the biggest polluters do not enjoy windfall profits” (OMB, 2009).

Though a 100% auction is still the administration’s preference, the likelihood of such a measure passing in Congress is slim. The May 21st draft of the Waxman-Markey bill retains Federal auction of only 15 percent of permits, the proceeds from which will be used to help with energy costs for low- and middle-income households. The other 85 percent of permits will be allocated to a collection of interests, including: protecting industry from the presumed high costs of technology transition; energy efficiency and clean technology investments; carbon dioxide capture and storage; domestic and international adaptation; and prevention of international tropical deforestation (Waxman and Markey, 2009). In this scheme, after the 15 percent of permits auctioned for low- and middle-income households, 61 percent go for free to CO₂ emitters and the rest are given to stakeholders to sell to generate funds for pursuit of public interests such as those described above.

President Obama’s Science and Technology Policy director, John P. Holdren, backed off the hard line of a 100% auction on April 8, well before the Waxman-Markey bill passed committee, saying the administration would work with Congress to get a bill they could both agree on (Eilperin, 2009). This suggests that the administration may go along with the Waxman-Markey allocation scheme.

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2 Here are a few examples of allocations: 30 percent of the total allocation is for electricity distributors, 5 for coal producers, 9 for natural gas distributors to mitigate cost impacts to consumers; 15 percent is for energy-intensive, trade-exposed industries; 2 percent (growing to 8 percent by 2027) is for wildlife and natural resource protection (Waxman and Markey, 2009). See bill sections 781-789 for more details.
**Auction revenues**

One signal of how serious the administration is about implementing a cap-and-trade system is its incorporation of permit revenues as a major stream of income in the 2010 budget. The budget includes projections of $237.5 billion in “climate revenues” between 2012 and 2014, and $645.7 billion by 2019. It proposes dedicating roughly $66 billion in 2012 to the “Making Work Pay” tax credit to help vulnerable communities adapt to a clean energy economy. The rest of the proceeds, roughly $15 billion per year, would go to investments in clean energy technologies (OMB, 2009). Of course, a large percentage of these revenues might well be unrealized if the allocations made in the May 21st draft of the Waxman-Markey bill become law.

**Renewable portfolio and energy efficiency standards**

In addition to the cap-and-trade mechanism, the Waxman-Markey bill includes a combined renewable energy and energy efficiency standard. The standard requires electric utilities to generate six percent of capacity from a combination of renewable energy and energy efficiency. This requirement rises to 20 percent by 2020. This first component is intended to increase demand for renewable energy by requiring utilities either to generate or buy energy from renewable sources. The efficiency standards requires that utilities either help their customers use less energy or that they buy credits from other utilities that document increased efficiency from their plants and users (Center for American Progress, 2009).

Twenty-nine states currently have mandatory renewable portfolio standards on the books (five have voluntary standards), with required percentages ranging from 11% to 25%, due between 2010 and 2025. However, many states without such standards are those with significant fossil fuel resources, such as West Virginia, Kentucky, Wyoming, Oklahoma, and Louisiana (Pew Center on Global Climate Change). By incenting more demand for renewable energy and, through efficiency, decreased total demand for energy, this Federal standard is likely to shift some pressure away from fossil fuel based energy producing lands and onto land offering opportunities for renewable energy generation.

**Feed-in tariffs**

So far the feed-in tariff concept has not appeared on President Obama’s agenda, though many cleaner energy advocates hope it does. The feed-in tariff has been applied most successfully in Germany, and on May 27, 2009 a feed-in tariff law was passed in Vermont (Pew Center on Global Climate Change). It requires that “grid system operators” purchase renewable energy and sets a minimum price for such energy to guarantee that renewable energy generators can operate profitably (GRESA).
Goal 4: Improving federal, state, and municipal energy efficiency

President Obama’s energy plans are not focused solely on increasing supply. In his speech on February 24th he made a special point of the opportunity to create green jobs to improve building energy efficiency across the U.S. His 2010 budget aims to modernize Federal buildings to reduce energy costs by 25% by 2013. It also claims the Federal government will help state and city energy efficiency efforts (OMB, 2009).

In 2001 Dick Cheney claimed that “conservation may be a sign of personal virtue but it is not a sufficient basis for a sound, comprehensive energy policy.” Despite this claim, energy efficiency is widely regarded as the cheapest way of bringing energy supply and future demand into alignment (Farrell et al., 2008). Robert Socolow and Stephen Pacala assert that reducing global building energy use by 25 percent would reduce carbon emissions by 25 billion tons by 2055 (Socolow and Pacala, 2005). President Obama clearly is focused on the importance of and potential for energy efficiency. His budget calls for weatherizing 1 million homes annually, and projects that the average home will save $350 per year through such weatherization (OMB, 2009).

Goal 5: Increasing domestic oil and gas production

Although the direction of the nation’s energy policy has shifted dramatically since the Bush administration, the U.S. will not wean itself from fossil fuels any time soon. The U.S. currently consumes 19 million barrels of oil per day, over 60 percent of which is from foreign sources (Mouawad, 2009). In order to further the goal of independence from foreign oil, the Obama administration is pushing several initiatives to increase domestic fossil fuel production.

Use it or lose it

During the summer of 2008, when gas hit $4 per gallon, the Obama campaign began pushing a new proposal for dealing with domestic oil and gas leases: “Use it or lose it.” Under such a regime, designed to increase domestic production, oil and gas companies would be required to begin drilling on the 68 million acres of land and ocean on which they currently hold inactive leases. If they did not begin drilling, the leases would be reissued to companies that would use them (Obama-Biden, 2008).

Though the logic behind this move is controversial, since having a lease on a piece of land does not necessarily mean that land contains recoverable oil or gas (WSJ, 2008), the administration included a subdued version of the “use-it-or-lose-it” idea in the Department of Interior’s budget. In 2011 the DOI will begin charging fees on non-producing leases in the Gulf of Mexico. In addition to the $582 million in Federal revenues this is expected to produce, the DOI hopes it will generate higher incentives for companies to relinquish or use their leased lands (OMB, 2009).

Oil shale and natural gas production

The summer of 2008 saw other pledges to increase the domestic fossil energy supplies. Candidates Obama and Biden promised to push forward the Alaska Natural Gas
Pipeline project, and to identify obstacles and speed permitting for drilling in several oil and oil shale formations. These include the National Petroleum Reserve in Alaska, the Barnett Shale in Texas, the Fayetteville Shale in Arkansas, and the Bakken Shale of North Dakota and Montana, which the USGS recently concluded may contain up to 4 billion barrels of recoverable oil (Obama-Biden, 2008).

Yet now that the pressure of high gas prices is off, the administration seems to be proceeding more slowly, at least with oil shale development. Shortly after taking office, Interior Secretary Ken Salazar reversed several “midnight rulings” from the Bush administration’s last days in office, which had opened up opportunities for oil and shale drilling in Colorado, Wyoming and Utah (Mouawad, 2009; Mouawad, 2008). It is unclear how future pressures from perceived fuel shortages or prices may affect this administration’s treatment of oil shale development.

**Goal 6: Investing in carbon capture and storage**

From President Obama’s speeches and policy emphasis it is clear that he favors the new, low-carbon energy economy to the old. Yet he is constrained by increasing energy demands, the current state of alternative energy technology, and historically low tolerance among U.S. citizens for high energy costs. He cannot switch the nation to low-carbon energy sources alone and keep pace with growing energy demand. Therefore, continued use of fossil fuels, particularly coal, is almost certain, and, given sufficiently high prices on carbon dioxide emissions, significant investment into carbon dioxide capture and storage (CCS) technology is likely (MIT, 2007).

To bolster CCS, the 2009 Recovery Act included funding to demonstrate CCS technology by building five coal-fired power plants with integrated carbon capture technology (OMB, 2009). The 2010 budget also provides for CCS project loan guarantees under the Energy Policy Act 2005 Title 17, and increases the DOE funding for demonstrating geologic CO₂ storage (OMB, 2009).

**Policies focusing on land conservation**

There are several components of current and pending federal policy that may help land conservation. President Obama’s budget includes enhancements to the Conservation Stewardship Program, the Conservation Reserve Program, and the Environmental Quality Incentives Program, included in the 2008 Farm Bill, to help farmers conserve land, benefit from carbon credits, and improve wildlife habitat. The Department of Agriculture budget includes $119 million (an increase of $34 million) for the Forest Land and Water Conservation Fund to purchase easements on forest land under threat of development (OMB, 2009).

That these investments in land conservation measures occur in the same document as the aforementioned transmission, oil and gas development projects highlights at least a tension in the Obama Administration’s environmental strategy. The Administration’s goals include support for both land conservation and energy infrastructure efforts that threaten conserved lands (Steater, 2009).
The Waxman-Markey bill also contains measures designed to support land conservation. It sets regulatory guidelines for the EPA Administrator to use, should she or he allow forestry projects to be eligible for carbon dioxide offset credits. The guidelines include promotion of native plant use and biodiversity, and a prohibition against noxious weeds and invasive species (House Committee on Energy and Commerce, section 741).

After finding that “land use change, primarily deforestation, accounts for roughly 20 percent of global greenhouse gas emissions,” the bill also proposes that the EPA Administrator work with USAID to establish programs in developing countries to avoid deforestation and to accurately account for it (House Committee on Energy and Commerce, summary 5/21/09, sections 751-754).

The bill’s accommodations for adaptation also may have implications for land conservation. The bill originally allocates two percent of emissions permits to states (rising to four percent in 2022 and eight percent after 2026), for them to sell and use the proceeds for “projects, programs, or measures to build resilience to the impacts of climate change, including:

1) extreme weather events such as flooding and tropical cyclones
2) more frequent heavy precipitation events
3) water scarcity and adverse impacts on water quality
4) stronger and longer heat waves
5) more frequent and severe droughts
6) rises in sea level
7) ecosystem disruption
8) increased air pollution
9) effects on public health” (House Committee on Energy and Commerce, section 453).

The Waxman-Markey bill also proposes the establishment of a Natural Resources Climate Change Adaptation Panel to assess needs and develop strategies for federal agencies to “make natural resources more resilient to the impacts of climate change.” It would require federal agencies such as NOAA, and USGS, as well as states, to develop natural resources adaptation plans. And it would create a federal fund to aid in natural resources adaptation to climate change (House Committee on Energy and Commerce, summary 5/21/09).

Now that the Waxman-Markey bill has passed out of its original committee, it goes to several others with jurisdiction. The one most likely to make major changes, or to hold up the bill entirely, is the Agriculture Committee. Its chief concerns relate to what materials are included as renewable biofuels, the assessment of emissions from corn ethanol production, the assignment of credit for soil management practices, and the impact potential energy price increases could have on agricultural interests (Winter, 5/21/09).
QUESTIONS FOR CONSIDERATION

1) How do the administration’s land conservation goals and programs square with its energy infrastructure development and other environmental goals? What opportunities does this provide for the conservation community to engage the administration on both energy infrastructure development and land conservation?

2) What impacts will increased federal funding for renewable energy R&D, investment, and production have on land conservation goals?

3) What changes in the local politics of conservation could result from the potentially significant economic development forces stemming from energy development in rural areas?

4) How has the conservation community been involved in shaping Administration goals and policy? How should and could the community enhance its involvement?

5) What political challenges does the administration face to enacting its policy goals? Where and how might the conservation community help or hinder enactment?

ORGANIZATIONS AND INDIVIDUALS DOING INTERESTING WORK

- Sherri Evans-Stanton, The Brandywine Conservancy Environmental Management Center (http://www.brandywineconservancy.org/index2.html)
- Bracken Hendricks, Center for American Progress (http://www.americanprogress.org/aboutus/staff/HendricksBracken.html)
- U.S. Representative Edward Markey (http://markey.house.gov/)
- Pew Center on Global Climate Change (http://www.pewclimate.org/)
- Union of Concerned Scientists (http://www.ucsusa.org/)
- United States Climate Action Partnership (http://www.us-cap.org/)
- U.S. Representative Henry Waxman (http://waxman.house.gov/)
USEFUL READINGS/WORKS CITED


KEY TAKEAWAYS FROM THE DISCUSSION WITH DAN REICHER, GOOGLE.ORG

Dan Reicher, Director of Climate and Energy Initiatives at Google.org, opened the workshop with his thoughts on the links between the administration’s efforts to promote clean energy and their implications for land conservation. Some of the key takeaways from his remarks and the ensuing discussion included the following:

**Clean energy is seen as an urgent subset of the response to climate change.** When combined with its co-benefits – green jobs and energy security – the rapid deployment of clean energy technologies has powerful momentum in the current administration.

**Similarly, there is a growing – but still small – recognition that land conservation is part of the climate solution.** Few land trusts are involved in the clean energy or climate discussions – even though their work prevents emissions, helps to store carbon, and increases our ability to adapt, while their opposition to new energy facilities helps stymie their deployment.

**Need to integrate technology, policy and finance as one thinks about responses to climate change.** The energy technologies needed are at various levels of development and face a wide range of costs. States are still leading on clean energy policy, although the new administration has made it a high priority. While trillions of dollars of investment in clean energy are needed, investors are wary of risk, including environmental permitting. As such, both permitting and financing new facilities are leverage points for conservation advocates.

> “Energy efficiency should come first in everyone’s thinking.” – Dan Reicher, Google.org

**Information technology is driving better decisions about where to site clean energy facilities.** On-line tools offer an opportunity to develop new approaches to siting decisions, particularly regarding the engagement of affected communities. They may also create new ways to aggregate and understand the impacts of decentralized, local land use decisions – such as smart growth initiatives.

**Taken together, these developments also offer new opportunities for the conservation community to help say yes to “good” clean energy projects, thus speeding their deployment.**