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A 4-Point Plan for Responsibly Expanding Renewable Energy Production on America's Public Lands and Oceans

By David J. Hayes and Nidhi Thakar

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Introduction and summary

In less than seven years of the Obama administration, an unprecedented collaboration between private-sector innovators, federal policymakers, and forward-thinking stakeholders has sparked a renewable energy revolution on America's public lands and waters. Whereas coal, oil, gas, and hydropower resources on taxpayer-owned public lands have been the primary focus for both developers and regulators for much of the past century, the Obama administration has, for the first time, facilitated the permitting and construction of large-scale solar, wind, and geothermal projects that are delivering clean, affordable power to American communities.

To help meet rising demand for renewable energy, President Barack Obama's Department of the Interior has permitted more than 50 utility-scale renewable energy projects on public lands since 2009. When fully constructed, these projects will deliver approximately 15,000 megawatts of new, clean renewable energy—enough to power more than 2 million homes.[1] With some of the world's largest solar and wind projects moving forward on public lands, the partnership between the federal government and renewable energy developers has contributed to the nation's twentyfold increase in solar generation and threefold increase in wind generation since 2009.[2]

With the United States emerging as a global leader in the shift to low-carbon fuel sources, and with projections of rapid growth in renewable energy demand over the next several decades, now is the time to assess how the federal government can build on its successful renewable energy programs on America's public lands. Specifically, how can the Department of the Interior and other federal land management agencies cement recent gains and further accelerate responsible renewable energy development on the nation's public lands and waters?

This report answers that question by identifying the key ingredients that have spurred renewable energy development on public lands since 2009. Building on the administration's record of accomplishment, the Center for American Progress

proposes a four-point plan to accelerate the construction of renewable energy projects on America's public lands and oceans in the right way and in the right places. Below are the four elements of CAP's recommended plan of action:

1. **Institutionalize recent renewable energy reforms.** To provide certainty for developers and stakeholders, federal policymakers should institutionalize through legislation and regulation the permitting reforms that have accelerated the review and approval of responsibly sited, large-scale renewable energy projects on public lands and waters.

2. **Designate more renewable energy zones on public lands and waters.** Federal policymakers should identify and use new renewable energy zones to prioritize and incentivize the siting of future projects. Specific initiatives should include: identifying at least 10 new, low-conflict Solar Energy Zones to facilitate the siting of major new solar projects on public lands; expanding offshore wind energy zones to cover deeper waters off the coast of Maine and in the Pacific Ocean to facilitate the deployment of floating turbine technology; and specifying low-conflict wind and geothermal energy zones on public lands throughout the United States.

3. **Develop community-based, distributed renewable energy resources on public lands with interested nearby communities.** Through new partnerships and pilot projects, federal policymakers should work with local communities to site renewable energy projects on adjacent public lands.

4. **Accelerate investment through a new revolving loan fund.** Federal policymakers should establish a revolving loan fund that facilitates the financing of creditworthy renewable energy projects on public lands and waters that employ proven technologies.

> *"We have a choice. We can remain the world's leading importer of oil, or we can become the world's leading exporter of clean energy. We can hand over the jobs of the future to our competitors, or we can confront what they have already recognized as the great opportunity of our time: The nation that leads the world in creating new sources of clean energy will be the nation that leads the 21st century global economy. That's the nation I want America to be."*
>
> *– President Barack Obama, March 27, 2009*[3]

Background: Key ingredients for the successful development of renewable energy on public lands

The quiet revolution that has ushered in huge, new renewable energy projects on U.S. public lands did not happen by accident. From the outset, the Obama administration's Interior Department, working closely with other federal agencies, the White House, states, and tribes, introduced a variety of reforms to promote renewable energy as a key part of its public lands energy portfolio. The result is a more efficient permitting process for renewable energy projects, more certainty for developers and investors, and better overall environmental results.

Key ingredients for these successes have included the prioritization of renewable energy development on public lands; the deployment of innovative intra- and interagency permitting approaches for the siting of new projects and related transmission facilities; application of landscape-level planning techniques to expedite the siting of renewable energy projects in the right way and in the right places; and strategic use of financing resources. These approaches, which provide some of the building blocks for CAP's four-point plan, are reviewed briefly below.

Prioritization of renewable energy development on public lands

In early 2009, the Interior Department issued Secretarial Order 3285, which identified renewable energy development as a priority for the agency.[4] The order directed the department to move forward with the timely and responsible development of renewable energy resources on the public lands that it manages. It further established a Task Force on Energy and Climate Change co-chaired by the deputy secretary and counselor to the secretary, ensuring that then-Secretary Ken Salazar's renewable energy initiative would receive top-level attention in the department.[5] Order 3285 was the impetus for many of the creative and aggressive policies on renewable energy that followed.

Deploying innovative agency approaches for permitting large-scale renewable energy and transmission projects

The Obama administration's forward-thinking permitting processes for large-scale renewable energy projects on public lands have drastically accelerated the viability of renewable energy in the United States. Prior to 2009, no other administration had developed land management policies that bolstered renewable energy development on public lands and maintained a responsible and balanced approach to development.

As highlighted in a recent Stanford Law School report, effective interagency coordination was needed to implement a successful permitting strategy, given that multiple bureaus in the Interior Department needed to sign off on renewable energy permits, including agencies that manage resources that might be affected by major renewable energy projects, such as the U.S. Fish & Wildlife Service, the National Park Service, and the Bureau of Indian Affairs.[6]

Building on the issuance of Secretarial Order 3285, the Interior Department formed a strike team made up of senior decision makers from each bureau of the department, managed by a representative from the Interior Department's Office of the Secretary, to develop and coordinate an efficient permitting process that considered the interests of all affected agencies and stakeholders.[7] At the core of the strike team's success was the hands-on involvement and accountability of senior staff in the process.[8]

The Interior Department's interagency permitting process also institutionalized early planning and conflict prevention by bringing in cooperating bureaus and key stakeholders; they met with project developers on the front end to identify potential fatal flaws in projects and to remedy or work around these flaws.[9] The early engagement of interested parties provided more time and flexibility to work through concerns and pitfalls.

These and other permitting reforms produced remarkable results, including slashing the time needed to permit wind and solar projects by more than half—from four years to one-and-a-half years. Additionally, the Interior Department met the deadline mandated by the Energy Policy Act of 2005 of 10,000 megawatts of new renewable energy three years early, approving more than 50 commercial-scale renewable energy projects on public lands.[10]

In addition to the Interior Department's focus on improving the permitting of projects on lands that it manages, the Obama administration launched two important cross-agency permitting initiatives to facilitate the development of major renewable energy-related infrastructure projects, such as transmission projects.

First, the administration created the interagency Rapid Response Team for Transmission, or RRTT, consisting of nine federal agencies—including the Interior Department, the White House Council on Environmental Quality, and the Department of Energy, among others—to better coordinate the permitting, review, and consultation processes for new transmission lines that are needed to deliver renewable energy from remote areas to major population centers.[11]

Second, the Obama administration developed a broad-based infrastructure permitting initiative for large infrastructure projects of all types, including utility-scale renewable energy projects. Led by the White House's Office of Management and Budget, this initiative utilizes many groundbreaking approaches to cut permitting time and red tape for renewable energy projects, including improved interagency coordination to increase the pace at which decisions are made; synchronized reviews of infrastructure projects among agencies; and the establishment of an online Federal Infrastructure Projects Permitting Dashboard to facilitate agency coordination and stakeholder input on projects.[12]

While these permitting reforms are widely lauded and have achieved important successes, they have not been institutionalized: There remains a significant question regarding whether these reforms will survive a change in administrations.

Using landscape-level planning techniques to expedite the siting of renewable energy projects in the right way and in the right places

One of the Obama administration's most important permitting innovations is its "Smart from the Start" initiative, which has utilized landscape-level reviews and planning to facilitate the siting of renewable energy projects in the right way and in the right places.[13] Smart from the Start calls on land management agencies to work with interested stakeholders to identify the best business- and environment-friendly locations for renewable energy in a region—also known as renewable energy zones—and then to incentivize the development of new renewable projects in those areas. Examples include the Bureau of Land Management's Western Solar Plan and the Bureau of Ocean Energy Management's Atlantic offshore wind initiative, discussed below.

Western Solar Plan

Under the administration of President George W. Bush, applications for solar energy projects on public lands languished, while the oil and gas industries boomed. The Bush administration approved more than 73,000 oil and gas leases over five years but did not issue a single lease for a major solar energy project.[14] In fact, the transition from the Bush administration left a legacy of approximately 400 pending applications for the development of solar projects on public lands.[15] Upon taking office, President Obama and his administration used the strike team described above to identify the most promising of the pending applications. They recognized, however, that to maintain the integrity of the public lands and meet the needs of renewable energy companies and stakeholders, a more systematic approach was needed, rather than simply soliciting applications for projects anywhere on millions of acres of public lands.

Accordingly, Secretary Salazar refocused a solar energy Programmatic Environmental Impact Statement, or PEIS, that had been initiated in the prior Bush administration and converted it into a landscape-level review that covered nearly 100 million acres of public lands in six southwestern states.[16] The solar PEIS developed criteria for "Solar Energy Zones" in which developers would be encouraged to develop projects while also identifying areas that were unsuitable for solar development, as well as so-called variance areas in which developers could file applications and seek site-specific approvals.[17]

The Department of the Interior finalized the solar PEIS in 2012 and issued an accompanying Record of Decision known as the Western Solar Plan.[18] Under the Western Solar Plan, 19 low-conflict Solar Energy Zones have been identified near transmission facilities in which the plan encouraged project applications.[19] It offered a variety of incentives, including the opportunity for developers to "tier off of" the programmatic environmental review of those zones, enabling some project developers to move forward using an environmental assessment, rather than a full-blown environmental impact statement.[20]

Recent examples of this successful strategy include the permitting of three utility-scale solar energy projects in the Dry Lake Solar Energy Zone in Clark County, Nevada. Because of the spadework that included detailed environmental analyses—which was completed in identifying the Solar Energy Zone—the three

projects were able to complete environmental assessments in only six months. This time frame is less than one-third of the usual two or more years typically required to complete a site-specific environmental impact statement.[21]

The Western Solar Plan envisioned that the Interior Department would work with solar developers to identify additional Solar Energy Zones in southwestern states, but no additional zones have been identified since 2013.

Atlantic offshore wind initiative

From an early stage, the Obama administration also emphasized that strong wind resources off the Atlantic Coast provided an important renewable energy source near the nation's largest population centers. Offshore wind development was particularly attractive because it has proven to be more efficient than onshore wind development due to stronger and more reliable wind currents over the ocean. It is firmly established as a major energy source in Europe.[22]

Unfortunately, as with land-based solar projects, the federal government previously had not placed a priority on reviewing and approving offshore wind projects. In the absence of federal guidance or support, applications for offshore wind farms—some of which had been filed in controversial, high-conflict areas off the East Coast—were languishing, while other developers remained on the sidelines.[23]

Once President Obama took office, his administration advanced the permitting process for the few pending projects. Looking forward, however, Secretary Salazar initiated the offshore wind Smart from the Start initiative in which the department's Bureau of Ocean Energy Management worked with a variety of federal agencies with jurisdiction in offshore waters—including, for example, the Coast Guard, the Department of Defense, and the National Oceanic and Atmospheric Administration, as well as with the governors of the Atlantic states, tribes, and other stakeholders—to identify low-conflict Wind Energy Areas for potential leasing to offshore wind developers.[24] Environmental reviews and special leasing opportunities were then focused on these consensus-based Wind Energy Areas.[25]

Structured similarly to the Western Solar Plan, the Atlantic wind program sought to expedite environmental reviews for leasing, while still maintaining rigorous environmental reviews and increasing collaboration between federal permitting authorities, states, and interested stakeholders. To date, nine Wind Energy Areas

have been identified off the coasts of six Mid-Atlantic states.[26] Seven lease sales already have been completed in Wind Energy Areas off the coasts of Rhode Island, Massachusetts, Delaware, Maryland, and Virginia, covering more than 350,000 acres of federal waters and generating more than $14 million in bids.[27]

The administration's focus on landscape-scale planning to facilitate the permitting of major renewable energy projects in optimal locations has prompted related efforts, including the Interior Department's landscape-scale "Mitigation Strategy," which current Secretary Jewell formally launched with the issuance of Secretarial Order 3330 on October 31, 2013.[28] The initiative seeks to match mitigation obligations associated with redressing unavoidable environmental impacts of specific projects with regional restoration and conservation needs so that mitigation dollars are not spent on small, patchwork projects that produce limited environmental benefits.[29] The pairing of renewable energy zones with associated regional mitigation opportunities provides a clear pathway for developers to cost-effectively mitigate unavoidable impacts, while ensuring that mitigation dollars are leveraged to address regional landscape enhancement and protection needs.[30] The Bureau of Land Management is piloting the regional mitigation concept in connection with leasing activity in its Dry Lake, Nevada, solar renewable energy zone.[31]

Strategic use of financial resources

The rapid growth in large-scale renewable energy in the United States would not have been possible without financial incentives provided under the American Recovery and Reinvestment Act of 2009, or ARRA. One of the largest hurdles of large-scale renewable energy projects is the financing needed to support infrastructure development. Two important programs created under ARRA are the Department of Energy's Section 1705 Loan Guarantee Program and the Treasury 1603 grant program, which enabled developers to receive federal funds up front in lieu of the Investment Tax Credit.[32] The Department of Energy's 1705 Loan Guarantee Program played an important role in advancing renewable energy projects because, at that time, private lenders had no experience in financing utility-scale renewable energy projects on public lands and, in addition, the 2008 economic downturn dried up many traditional sources of capital.[33]

Highlights of renewable energy development under the Obama administration

- More than 50 renewable energy projects permitted since 2009[34]
- Approximately 15,000 megawatts of additional capacity to the electric grid when all permitted projects are built[35]
- First-ever large-scale solar project on public lands permitted and placed in operation[36]
- First-ever commercial lease for offshore wind energy issued and construction commenced on first U.S. offshore wind farm[37]
- More than 2,300 miles of new transmission permitted[38]
- Potential for more than 21,000 U.S. construction and operations jobs[39]
- 10,000 megawatts of new renewable capacity permitted by the Interior Department three years ahead of the deadline established by the Energy Policy Act of 2005[40]

Recommendations

Clean, renewable energy from the nation's public lands has been critical to meeting a growing share of the United States' demand for energy. However, opportunities remain to expedite the transition to clean energy. To that end, the Center for American Progress recommends the following four-point plan to build on the clean energy foundation of the Obama administration and accelerate the development of new renewable energy projects on public lands and waters.

Institutionalize recent renewable energy reforms

As discussed above, the Obama administration has amassed an impressive track record in applying innovative efforts to improve the coordination of multiple agencies as they review and permit complex renewable energy and other infrastructure projects. This concerted effort has sharply reduced permitting wait times for a number of large projects while also improving environmental results.

The permitting innovations employed by the Obama administration have worked well but are proceeding under the discretionary leadership of political appointees and have not been institutionalized. In addition, despite widespread praise for these permitting reforms, Congress has not explicitly endorsed or funded them, leaving agencies to scramble to find the resources needed to facilitate cross-agency permitting coordination and prioritization efforts.

It is critical that these permitting reforms be institutionalized. They need to become the norm, and not the exception, when it comes to how the federal government approaches the permitting of complex, high-priority projects.

CAP recommends two complementary mechanisms for institutionalizing permitting reforms: congressional action and regulatory action.

On the congressional front, Sens. Claire McCaskill (D-MO) and Rob Portman (R-OH) have introduced the Federal Permitting Improvement Act of 2015, which is based on several Obama administration permitting innovations. This legislation would establish a Federal Permitting Improvement Council chaired by a federal chief permitting officer, or CPO, in the Office of Management and Budget.[41] The CPO would be tasked with managing the inventory of projects and tracking their performance and progress using tools such as a permitting dashboard.[42] The act further tasks lead agencies to coordinate public and agency participation, manage and track permitting deadlines, and establish a consultation process with agencies that emphasizes the early identification of potential permitting issues with key agencies and stakeholders.[43]

By providing statutory direction and related funding support through the enactment of the Federal Permitting Improvement Act or equivalent legislation, Congress could ensure institutionalization of innovative permitting practices for renewable energy projects on public lands and for other projects that have a federal permitting nexus.

On the regulatory front, CAP recommends that the White House's Council on Environmental Quality, or CEQ, institutionalize sound and environmentally beneficial permitting reforms by updating regulations promulgated in the 1980s under the National Environmental Policy Act, or NEPA.

More specifically, CEQ should update NEPA's regulations to require explicitly that lead agencies reach out to and coordinate with other reviewing and permitting agencies early in the process. As a corollary, the regulations should mandate that all of the relevant reviewing and permitting agencies confer with project proponents and key stakeholders prior to the initiation of the NEPA process. This way, they can identify potentially fatal flaws early enough for developers to adjust their projects. In addition, early input from agencies and stakeholders can ensure that the NEPA process covers all of the key environmental issues. Updated NEPA regulations also could establish an interagency permitting and review council to ease the administrative burden imposed on lead agencies and facilitate outreach among relevant agencies and stakeholders. Among other actions, the council could assist in implementing more effective scoping processes and other administrative tools, such as timelines and publicly available dashboards to coordinate more timely and effective environmental reviews.[44]

Designate more renewable energy zones on public lands and waters

The Interior Department's Smart from the Start landscape-scale planning model for solar and offshore wind has proven to be very successful. The Energy Policy Act of 2005 mandated the development of 10,000 megawatts of new renewable energy from U.S. public lands by 2015.[45] By proceeding in a focused and deliberate manner, the Obama administration met this goal three years ahead of schedule and has permitted approximately 15,000 megawatts of renewable energy from U.S. public lands, significantly exceeding Congress' goal.[46] CAP reports have also confirmed that states with large public land footprints have enormous, largely untapped capacity to produce clean wind and geothermal energy.[47]

The Department of the Interior should double down on its renewable energy zone model by identifying new Solar Energy Zones and new offshore wind energy zones and by introducing wind and geothermal renewable energy zones on public lands.

Identify new Solar Energy Zones

The Southwest United States is known as being one of the most solar rich areas in the world, with the Bureau of Land Management, or BLM, managing more than 19 million acres with "excellent solar potential" across six states in the region.[48] The BLM has identified Solar Energy Zones in this region that are optimally situated for solar development on public lands because they are close to transmission facilities and have limited environmental conflicts. As discussed above, the BLM's Western Solar Plan incentivizes developers to site their projects in these zones. The Western Solar Plan identified 17 initial Solar Energy Zones and called on industry and the government to establish additional zones based on the criteria set forth in the Western Solar Plan. Two more Solar Energy Zones in Arizona and California were created in 2013.[49]

The 19 zones identified under the Western Solar Plan are intended to be representative and to provide a template for the identification of additional Solar Energy Zones. The BLM's plan was to work with the solar industry and interested stakeholders to identify new Solar Energy Zones on an ongoing basis. Unfortunately, however, the BLM has not created any new Solar Energy Zones since it added the two new zones almost two years ago. This is in spite of a recognition that the plan did not purport to comprehensively address all relevant areas and despite the ongoing development of new transmission lines in the West that are opening up additional areas for potential designation as Solar Energy Zones.[50]

Accordingly, CAP recommends that the BLM and the U.S. Forest Service prioritize the identification of at least 10 new Solar Energy Zones and related regional mitigation opportunities on public lands. This will further diversify the Western Solar Plan's footprint so that developers continue to have a clear road map and pathway for permitting new projects.

Expand offshore wind energy zones

As discussed above, the Interior Department's Smart from the Start program has employed a forward planning process with states, developers, and other key stakeholders to identify "Wind Energy Areas" up and down the East Coast where shallow waters and proximity to major load centers make offshore wind development attractive. Successful auctions have been paired with the zones, taking advantage of the clear permitting pathway that they establish.[51]

In the past few years, new floating wind technology that can be sited in deeper offshore waters has emerged and is being tested in several locations around the world, including Norway, host to Statoil's Hywind Demo; Scotland, host to the Hywind Scotland Pilot Park; and Japan, which recently unveiled Asia's first floating turbine off the coast of Fukushima. In 2013, the United States launched its first floating wind turbine off the coast of Maine through the work of the DeepCwind Consortium.[52]

Floating turbines have the potential to enable the production of offshore wind energy in the deeper waters found offshore in Maine, California, Oregon, Washington, Alaska, and Hawaii—areas in which there is strong interest in developing offshore wind resources. Just this year, the Bureau of Ocean Energy Management received two proposals from AW Hawaii Wind LLC to build the nation's first offshore floating wind farm comprised of 100 floating turbines off the shores of Hawaii that would produce up to 408 megawatts of electricity.[53]

Based on the success of incentivizing offshore wind development through the identification of low-conflict Wind Energy Areas in shallower waters off the Atlantic states, the Department of the Interior should expand its existing scope of renewable energy zones to identify new zones in deeper offshore waters, such as off the coast of Maine and in the Pacific Ocean, which can accommodate floating wind turbines. Applying the same forward planning process with this nascent technology will attract developers and accelerate the permitting of such projects.

Identify low-conflict wind and geothermal energy zones

The BLM manages 20.6 million acres of land that have the potential to generate significant amounts of wind energy.[54] While the BLM completed a Programmatic Environmental Impact Statement for wind in the previous administration and has authorized approximately 40 wind energy projects over the past couple of decades, it has not taken the next, important step of identifying low-conflict wind energy zones.[55] As a result, wind developers complain that the BLM and its sister regulatory agency, the U.S. Fish & Wildlife Service, have not proactively identified public lands in which wind energy applications will be welcomed.[56]

The same is true for geothermal development on public lands. Unfortunately, while the BLM has held a number of successful competitive lease sales for geothermal energy, it has not developed a systematic landscape-scale approach to identify geothermal energy zones that will facilitate expansion of this important form of renewable energy.[57]

Keying off of the successful Smart from the Start initiative, the current administration should update and expand the stale and incomplete programmatic reviews that the Bush administration undertook for onshore wind and geothermal renewable energy resources. It should identify wind energy zones and geothermal energy zones on public lands and the accompanying regional mitigation opportunities. The Interior Department's track record shows that specifying renewable energy zones that have reduced environmental conflicts, provide access to transmission, and are otherwise attractive to renewable energy developers will avoid stakeholder conflicts, expedite permitting, and incentivize significant new renewable energy development on public lands in the right way and in the right places.

Develop community-based, distributed renewable energy resources on public lands with interested communities

Some of the most exciting developments in renewable energy revolve around opportunities for individuals to invest in solar rooftop systems and other forms of distributed energy.[58] Community-based renewable energy is an attractive form of distributed energy that can provide economies of scale and open up opportunities for Americans, who otherwise would be unable to utilize individual distributed energy systems to participate in renewable energy.[59]

Community-based projects may be able to bypass some of the hurdles that can discourage individual renewable energy projects. For example, it is estimated that almost half of all U.S. households are currently unable to host photovoltaic systems because there is insufficient roof space and access—or because people do not own their homes.[60] Indeed, as an acknowledgment of this need—and opportunity—the administration has launched the National Community Solar Partnership to provide access to solar energy for almost 50 percent of American households that either rent or do not have space for a solar energy system. The partnership also provides renewable energy in federally subsidized housing.[61] A number of states also have developed incentives to promote community-based renewable energy.[62]

U.S. public lands—including military lands—and national forests present an excellent opportunity for the federal government to work in partnership with energy developers and community leaders to site small or mid-sized renewable energy projects on nearby federally owned lands that are suitable for renewable energy development. Many neighboring communities around the country are adjacent to public lands that may be well suited for smaller-scale renewable energy development and that could serve the local community while also, in some cases, serving federal energy needs related to visitor services, military operations, federal offices, or other onsite federal energy needs. Likewise, community-based projects for public lands or tribal lands near interested American Indian or Alaska Native communities present a key opportunity.

CAP recommends that the federal land management agencies, including the Department of the Interior, the Department of Agriculture's Forest Service, and the Department of Defense, reach out to interested leaders in communities near public lands and work in partnership to prioritize the development of community-based renewable energy projects on public lands that will serve the adjacent communities, as well as local federal needs. The federal government could jumpstart this process by completing a PEIS to analyze environmental impacts associated with typical community-sized renewable energy projects.

A handful of representative locations could provide the basis for the programmatic review, including: (1) communities adjacent to military bases that potentially could accommodate renewable energy projects; (2) gateway communities near western public lands—for example, Bend, Oregon; Payson, Arizona; and Durango, Colorado; (3) communities near BLM or Forest Service lands in the East, South, and Midwest; and (4) tribal communities in or adjacent to suitable trust lands or public lands.

Completing a PEIS would enable site-specific projects to tier off of the programmatic review, greatly simplifying and shortening the permitting time needed to reach decisions on proposed projects. A variety of development and funding templates also should be developed and shared with federal agencies, private developers, and interested communities, including templates in which long-term contractual commitments by participating federal agencies help undergird the economics of renewable energy projects.

Accelerate investment in creditworthy projects through a new revolving loan fund

During the economic downturn in 2008 and 2009, when capital for major infrastructure projects was limited, the American Recovery and Reinvestment Act of 2009 filled an important gap in private-sector financial markets and helped bolster the rapid growth in large-scale renewable energy on public lands in the United States.[63] In particular, ARRA programs played a key role in facilitating the financing of more than 25 new renewable energy projects, including a number of utility-scale solar energy projects that are now in operation, such as the Desert Sunlight, Mojave, and Ivanpah projects. These received $4.3 billion in total funding and have the capacity to produce more than 1,000 megawatts of energy combined.[64]

The situation today for financing major renewable energy projects has improved but remains challenging. On the plus side, the successful construction and operation of utility-scale renewable energy projects on public lands has demonstrated what is termed "proof of concept" and has silenced the critics who questioned the viability of large-scale renewable energy projects.[65] These large projects also have helped dramatically expand the market for solar panels and wind turbines, helping reduce the cost and increase the competitiveness of renewable energy. Utility-scale solar energy can now be generated for as little as 5.6 cents per kilowatt-hour, and large-scale onshore wind can be generated at 1.4 cents per kilowatt-hour. The low cost makes them attractive, cost-effective energy sources when compared with natural gas prices that approximate 6.1 cents per kilowatt-hour and coal prices at 6.6 cents per kilowatt-hour.[66]

Nonetheless, financing remains a significant issue for the renewable energy industry, which is young and faces an uneven playing field. It lacks many of the built-in infrastructure, tax, and financing advantages that the fossil fuel energy industry enjoys.[67] For these reasons, it is essential to the continued growth of the renewable

energy industry that the Investment Tax Credit and the Production Tax Credit that have served as incentives for the development and deployment of renewable energy technologies remain in place.

But new financing mechanisms are also needed to continue the growth of the renewable energy industry. Specifically, CAP recommends the establishment of a revolving loan fund to reduce the overall cost of capital for developers constructing community-based and utility-scale renewable energy projects on public lands. The revolving fund would support a modest tranche of publicly supported loans for qualifying projects that have attracted private financing and that are supported by credit-worthy power purchase agreements. Leveraging funds in this manner would provide an additional funding source for renewable energy projects on public lands without putting public funds at serious risk or making outright grants for such projects.

The revolving loan fund could be financed by a number of potential sources. Two funding sources include bonus payments and rents collected from renewable energy projects on public lands, as well as Department of Energy renewable energy and efficiency grant program funds, such as remaining funds under the 1703 Loan Guarantee Program.[68] Administration of the fund could take one of several forms, including the formation of a quasi-public corporation along the lines of the Connecticut Green Bank or the addition of a clean energy finance arm to an existing or new infrastructure bank that works with banks lending for traditional infrastructure projects.[69]

Conclusion

The nation's public lands have played an instrumental role in transitioning America's energy mix from traditional fossil fuels to clean energy. The United States must continue to produce more renewable energy production from its public lands and offshore waters in order to enhance its energy security and energy independence, reduce greenhouse gas emissions, and continue to pivot toward a clean energy future. The Obama administration's innovative approach to the permitting of renewable energy projects—which brings parties to the table early on and paves the way for efficient yet rigorous environmental reviews and permitting decisions—is integral to continued success.

Moving forward, however, will require additional innovations and reforms, built on the solid foundation established by the Obama administration. CAP proposes implementation of the four-point plan outlined in this report to accelerate the construction of renewable energy projects on America's public lands and oceans in the right way and in the right places.

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Endnotes

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