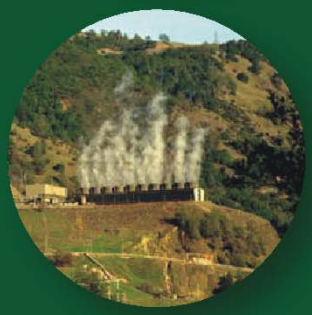
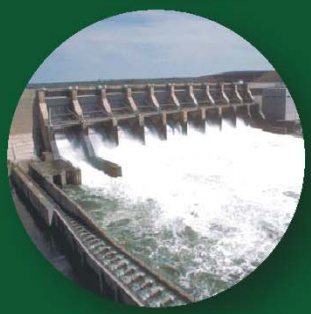
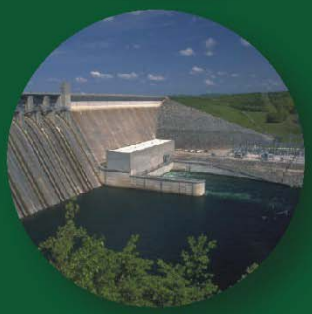
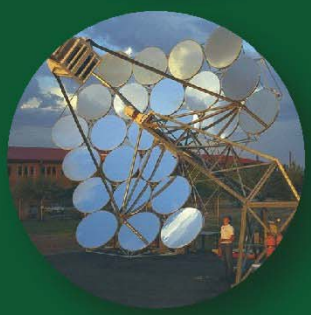
White House Report

In Response to The National Energy Policy Recommendations to Increase Renewable Energy Production on Federal Lands

Prepared by

U.S. Department of Energy

U.S. Department of the Interior

August 2002

August 20, 2002

The Honorable Richard B. Cheney
The Vice President of the United States
Washington, DC 20501

Dear Mr. Vice President:

The National Energy Policy Development Group recommended to the President, in May 2001, that our Departments work together to re-evaluate access limitations to Federal lands in order to increase renewable energy production. In response, the Departments of the Interior, Energy, Agriculture, and Defense created an interagency task force to address the issues associated with increasing renewable energy production on Federal lands.

We have collaborated on a report that summarizes our response to your recommendation. On behalf of the task force, we submit this report and a set of proposed actions. The report describes activities completed, underway, and planned for the future. Highlights regarding renewable energy that were included in the President's Fiscal Year 2003 Budget Request and a listing of relevant Executive Orders are also provided.

Our response to the National Energy Policy reflects a commitment to increase our energy security by expanding the use of indigenous resources on Federal lands, while accelerating the protection of our environment. We request that you present accomplishments and proposed actions to the American people as a demonstration of this commitment.

Sincerely,

Spencer Abraham

Gale A. Norton

Enclosure

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EXECUTIVE SUMMARY

This document was prepared by the Department of the Interior and the Department of Energy with input from the Department of Agriculture and the Department of Defense. These Departments have been collaborating on a response to the National Energy Policy recommendations to increase renewable energy production by addressing access limitations to Federal lands since the NEP release in May 2001. Several activities have taken place that forged a coalition of interested Departments and initiated a variety of actions across the country since last May. The Department of the Interior and Department of Energy formed an interagency task force in July 2001 and invited various Departments and organizations working on renewable energy projects on Federal lands to participate. Subsequent meetings have fostered a collaborative effort among the four Departments and other Federal organizations, such as the Council on Environmental Quality and the Federal Energy Regulatory Commission. This network of interested parties is collaborating with the Departments of the Interior and Energy in keeping up-to-date with various Department projects, policy developments, and cross-cutting actions.

A Memorandum of Understanding was established, in August 2001, among the Department of Energy, Department of the Interior, U.S. Department of Agriculture, U.S. Environmental Protection Agency, Council on Environmental Quality, and the members of the Western Governors' Association regarding energy development and conservation in the Western United States. The purpose of this Memorandum of Understanding is to establish a framework for cooperation between Western States and the Federal Government to address energy problems facing the West. Given the substantial amount of Federal lands in the West, this Memorandum of Understanding will facilitate increasing renewable energy production.

The Departments of the Interior and Energy co-sponsored a conference in November 2001. This conference, hosted by Secretary of the Interior Norton in Washington, D.C., brought together more than 200 senior executives representing energy industries and Federal and State Government agencies. The Department of the Interior prepared a list of almost 90 suggestions put forth by the participants during the meeting. In February 2002 Interior's Bureau of Land Management held a follow-up workshop for industry stakeholders in Palm Springs, California.

The results of these activities are presented in this report. Section 1.0 of this report contains background information on Federal activities related to renewable energy on Federal lands since January 2001. A review of the National Energy Policy's recommendations can be found in Section 1.1. Section 1.2 provides an overview of the renewable energy field, followed by a description of each energy resource (wind, biomass, geothermal, solar, and hydropower) with an accompanying map indicating locations for potential development. Section 1.3 presents a brief overview of Federal lands and the total acreage under Federal Departments' jurisdictions. A chart listing actions related to renewable energy from the Department of the Interior, Department of Energy, U.S. Department of Agriculture, and the Department of Defense is provided in Section 2.0. Although many of these actions are under development, this chart captures the most current tasks and schedules as of April 2002. Section 3.0 describes, in more detail, seven proposed actions suggested by the Departments of the Interior and Energy. The actions include:

1. The Departments of Energy and the Interior will continue to lead the collaborative work of the interagency task force.
2. The Department of Energy will update the Wind Energy Resource Atlas of the United States with a focus on Federal lands.
3. The Department of the Interior will establish an initiative on biomass production.
4. The Departments of the Interior and Energy will assess geothermal potential with updated mapping information and promote increased geothermal energy production in the Great Basin.
5. The Department of the Interior will process all pending geothermal lease applications by fall 2003.
6. The Administration will consider drafting an Executive Order on increasing renewable energy on Federal lands.
7. The Department of the Interior will establish an Ombudsman who will track all renewable energy actions and serve as a clearinghouse for information and issues causing concern or delay.

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WHITE HOUSE REPORT
IN RESPONSE TO TWO NATIONAL ENERGY POLICY RECOMMENDATIONS TO INCREASE RENEWABLE ENERGY PRODUCTION ON FEDERAL LANDS

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1.0. INTRODUCTION

1.1. Summary of the National Energy Policy Recommendations

There were two recommendations presented in the National Energy Policy related specifically to renewable energy production on Federal lands. The first recommendation is the primary focus for the interagency actions between the U.S. Department of the Interior (DOI) and U.S. Department of Energy (DOE), as it calls upon the two Secretaries to collaborate on increasing renewable energy production. This recommendation states:

"The National Energy Policy Development Group recommends that the President direct the Secretaries of the Interior and Energy to re-evaluate access limitations to Federal lands in order to increase renewable energy production such as biomass, wind, geothermal, and solar."

The second recommendation also addresses renewable energy, however, it only relates to DOI's responsibilities in the areas of geothermal leasing. This report addresses the actions related to geothermal leasing in the List of Current Federal Department Actions (Section 2.0) and the Proposed Actions (Section 3.0). The second recommendation states:

"The National Energy Policy Development Group recommends that the President direct the Secretary of the Interior to determine ways to reduce the delays in geothermal lease processing as part of the permitting review process."

1.1.1 Background

Federal Departments have been working towards the goal of increasing renewable energy production on Federal lands for many years. Recent initiatives, however, such as President Bush's Executive Order 13212 and the National Energy Policy report, both issued in May 2001, resulted in an impressive response among the relevant Federal Departments. In the forefront, DOI and DOE formed an interagency task force in July 2001 to increase renewable energy production on Federal lands. This task force is composed of representatives from various bureaus within DOI and DOE with participation from the Department of Defense (DoD), Federal Energy Regulatory Commission (FERC), U.S. Department of Agriculture (USDA) and the Council on Environmental Quality (CEQ). The goal of this task force is to work cooperatively to ensure maximum production of renewable energy on public lands. Additionally, DOE and DOI have formed intra-agency groups to track activities within their respective Departments and serve as reviewers and coordinators at the project level.

The initial results of this task force include established and planned interagency agreements that promote better coordination among DOI, DOE, and DoD and coalesce renewable energy expertise across all Federal Governmental offices. For example, the Bureau of Land Management (BLM) is collaborating with the DOE's National Renewable Energy Laboratory (DOE-NREL) on mapping high potential renewable energy sites nationwide. Also, DOE-NREL and other laboratories are supporting DoD's efforts to assess renewable energy potential on or near military bases.

In the same month that the interagency task force was formed, Secretary Norton announced that the DOI would host a conference aimed at expanding renewable energy production on public lands. The conference, held on November 28, 2001, included both state and local officials as well as industry leaders and other citizens. The conference focused on maximizing wind, solar, biomass, and geothermal energy on Federal lands. The goal of the conference was to provide a forum in which interested individuals and organizations could share their opinions on increasing renewable energy production on Federal lands. More than 200 senior executives, representing energy industries and Federal and State Government agencies, attended this successful conference, which was held in Washington, D.C. The conference attendees agreed there is tremendous potential for expanding production of renewable energy on Federal lands. (For further information on this conference, please see the attached CD-ROM). A follow-up meeting, sponsored by the BLM in Palm Springs, California in February 2002, continued the dialogue among industry stakeholders, DOI,

USDA's Forest Service, and DOE and its national laboratories.

A Memorandum of Understanding (MOU) was established, in August 2001, among DOE, DOI, USDA, the U.S. Environmental Protection Agency (EPA), CEQ, and the members of the Western Governors' Association (WGA) regarding energy development and conservation in the Western United States. The purpose of this MOU is to establish a framework for cooperation between Western States and the Federal Government to address energy problems facing the West. Due to the substantial amount of Federal lands in the West, this MOU will facilitate increasing renewable energy production. The WGA and CEQ co-sponsored the Second Environmental Summit on the West in Salt Lake City, Utah on April 24, 2002. The purpose of this summit was to advance successful approaches for addressing tough environmental and natural resource issues, including opportunities for increasing renewable energy production in the Western states.

The Steering Committee of the interagency task force, chaired by DOI and DOE, has met several times over the last ten months. The purpose of these meetings was to track information across Departments on renewable energy and involve Department representatives in the preparation and review of this report. Section 2.0 provides a comprehensive list of Federal actions since January 2001. Many of these actions are underway and planned for the future. Since many of these actions are under development, we have captured the most current tasks and schedules as of April 2002. Highlights regarding renewable energy projects that were included in the President's Budget Request for Fiscal Year 2003 and a listing of relevant Executive Orders are also provided as an appendix.

While several agencies have not developed specific products related to this effort, they continue to offer information critical to decisions and deliverables produced by other Departments. The expertise and leadership in this area by CEQ, EPA, and FERC has been extremely valuable and is reflected in the quality of the entire portfolio of action undertaken by the interagency task force.

1.2 Brief Synopsis of Renewable Energy Resources

Renewable energy resources tap naturally occurring flows of energy to produce electricity, fuel, heat, or a combination of these energy types. Renewable energy supplies not only help diversify our energy portfolio; they do so with few adverse impacts. The most successful renewable energy, in terms of power generated over time, is clearly hydroelectric resources. Hydropower facilities in the United States can generate enough power to supply 28 million households with electricity, the equivalent of nearly 500 million barrels of oil. The Federal Government is now focused on maintaining existing capacity, increasing efficiencies, and mitigating potential environmental impacts. For example, new advances in turbine technologies may reduce the effects of fish mortality.

Non-hydropower renewable energy accounts for about four percent of current U.S. energy production, divided evenly between electricity generation and transportation fuels, such as ethanol. While the current contribution of renewable energy resources to America's total electricity supply is only about nine percent, these energy sources are among the fastest growing in the nation. Electricity generation from non-hydropower renewable energy resources, generated from biomass, geothermal, wind, and solar, grew by nearly 30 percent in the 1990s. Continued growth of renewable energy will remain important in delivering larger supplies of clean, domestic power for America's growing economy. The table below provides a baseline of capacity, generation, and cost of each of the renewable energy resources.

Current U.S. Renewable Energy Sources[1]

Type	Capacity (GW)	Generation (billion kWh/year)	Cost[5] ¢/kWh
Geothermal	2.9	24	5-8
Wood & Other Biomass[2]	7.0	49	7-10
Solar[3]	0.4	1.4	12-38
Wind	3.8	12	4-6
Non-hydro Total	**14.1**	**86.4**	
Hydropower	80.3[4]	277	2-6
Total Renewables	***94.4***	***363.4***	

[1] 2000-2001 Baseline developed by OPT for compliance with the Government Performance and Results Act Baseline. It is based on EIA's most recent baseline (1999;Annual Energy Review) and updates from the OPT program offices and Renewable Electric Plant Information System. This data also was provided to the General Accounting Office.

[2] Does not include waste to energy or landfill gas.

[3] Does not include off grid PV. As of 2000, some 98.7 MW of off-grid photovoltaics had been installed in the U.S.

[4] 2002 Annual Energy Outlook, EIA

With the expected high growth rate for non-hydropower renewable electricity generation, these energy resources will play a more significant role in electricity markets in the next two decades. Renewable fuel consumption, including ethanol for gasoline blending, is projected to grow at an average rate of 1.1 percent a year through 2020. In 2020, 55 percent of renewables are projected to be used for electricity generation and the remaining 45 percent for dispersed heating, industrial uses, and fuel blending.

In addition to technological performance, attention to several key market and regulatory constraints would accelerate the development and use of renewables in the marketplace. Because many renewable energy technologies do not fit into traditional regulatory categories, they are often subjected to competing regulatory requirements or to requirements that were never designed to address them. For example, while the current Clean Air Act requires electric power generators to invest in cleaner technologies, it does not contain specific incentives for the development of renewable resources.

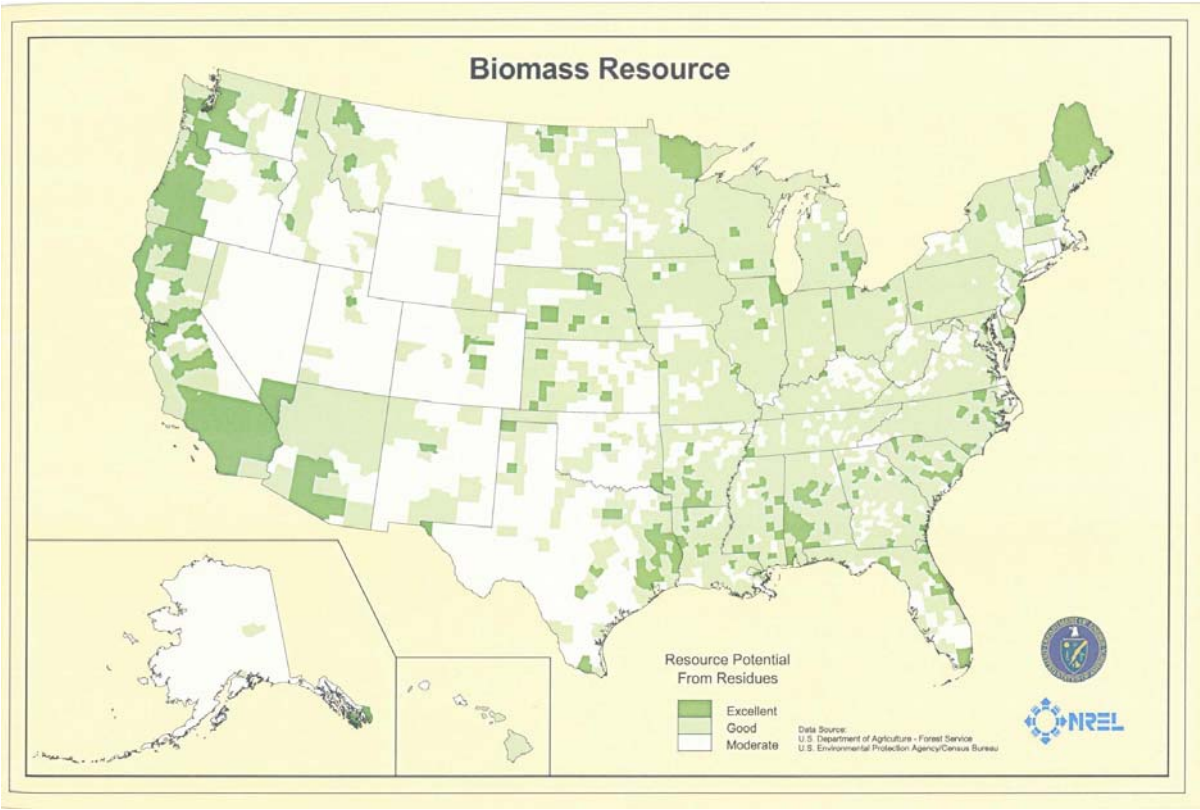
The tremendous success of renewables, however, is in part the result of over twenty years of research, development, and demonstration conducted by public and private sectors. This work has dramatically improved these technologies and has reduced their costs by as much as 90 percent. A significant feature of their appeal is that the non-depletable sources of energy are domestically abundant and often have less impact on the environment than conventional sources. They can provide a reliable source of energy at a stable price, and they can also generate income for farmers, landowners, and others who harness them.

The next section briefly defines each renewable resource. A map, prepared by DOE, depicting the potential of these resources across the nation, accompanies some resource descriptions.

1.2.2 Biomass

Biomass is organic matter that can be used to provide heat, make fuel, and generate electricity. Wood, the largest source of biomass, has been used to provide heat for thousands of years. Many other types of biomass are also used as an energy source, such as plants, residue from agriculture or forestry, dead, diseased and downed trees (hazardous fuels), and the organic component of municipal and industrial wastes. Landfill gas is also considered a biomass source. Biomass resources can be replenished through cultivation of what are known as energy crops, such as fast-growing trees and grasses. Beyond energy benefits, development of biomass benefits rural economies that produce crops used for biomass, particularly ethanol and biomass electricity generation.

Generating electricity from biomass is accomplished through the direct combustion of wood, municipal solid waste, and other organic materials; co-firing with coal in high efficiency boilers; or combustion of biomass that has been chemically converted into fuel oil. Even gas for generating electricity can be produced from biomass. Gasification systems use high temperatures to convert biomass into a gas that is used to fuel a turbine. Bioenergy technologies use renewable biomass resources to produce an array of other energy-related products including liquid, solid, and gaseous fuels, heat, chemicals, and other materials. Bioenergy ranks second to hydropower in renewable energy production and accounts for three percent of the primary energy production in the United States.

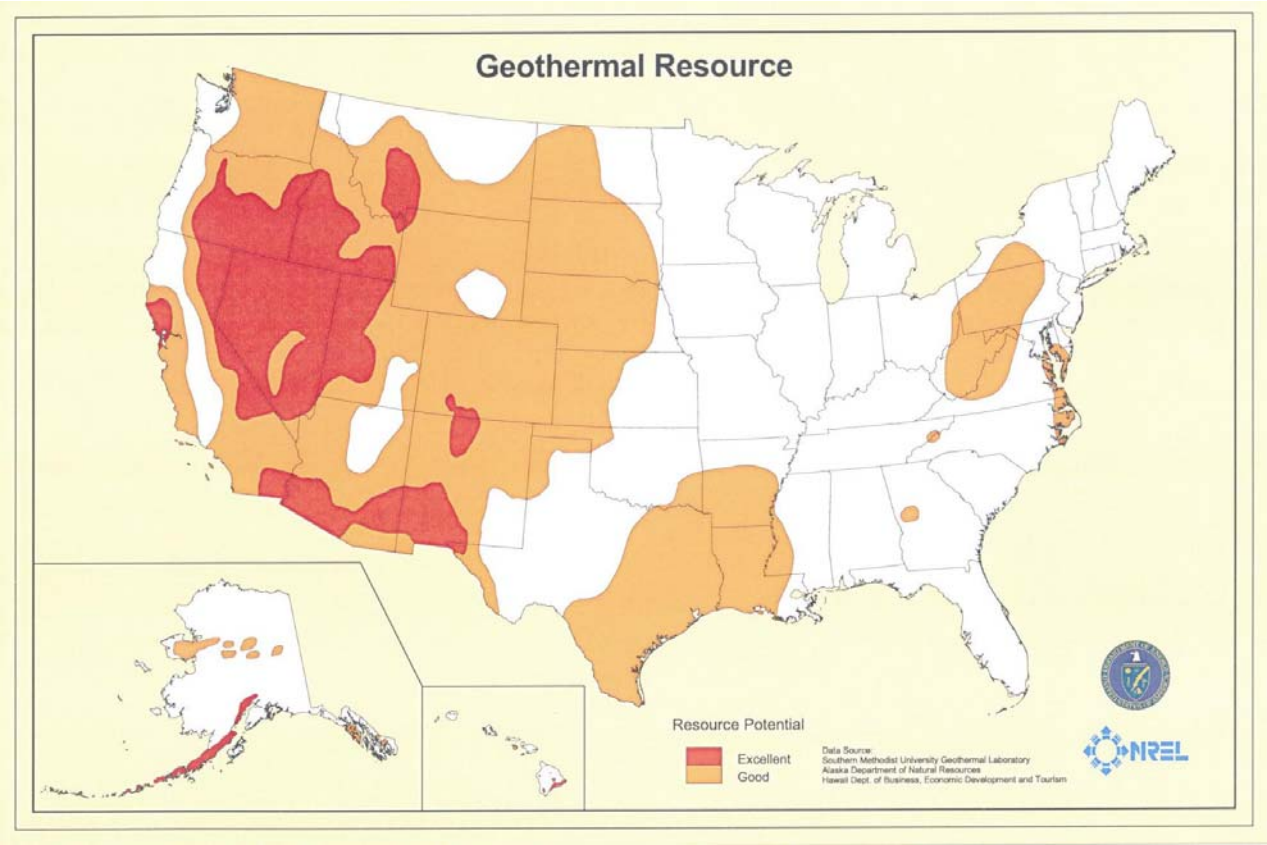


The biomass map shows county-level biomass resource potential estimates from nationwide data for forest residue municipal solid waste (MSW); and from corn and wheat crop residue data for 36 eastern U.S. states. In this map, "Moderate" represents less than 5,000 potential kilowatts per county, "Good" represents 5,000 to 40,000 potential kilowatts per county, and "Excellent" represents greater than 40,000 potential kilowatts per county.

1.2.3 Geothermal

Geothermal energy facilities use water heated by the earth to perform work. The heat can be used in district heating systems and geothermal heat pumps, to heat buildings or provide hot water, or it can be used in power plants to generate electricity. Geothermal power plants typically operate at capacity factors of over 90 percent, making them a highly reliable source of baseload power. The U.S. industry dominates the world market for geothermal power development, although firms from European and Asian countries provide serious competition.

Geothermal resources suitable for electricity generation are concentrated in the West, while geothermal heat pumps can be used virtually anywhere. Geothermal energy accounts for 17 percent of renewable electricity generation, including almost five percent of California's total electricity demand, and 25 percent of power demand on the Big Island of Hawaii. The domestic net installed capacity has increased from 500 MW in 1973 to 2,900 MW today. The U.S. geothermal potential is estimated to be in excess of 20,000 MW; this figure could more than double when breakthrough technologies, now under development, allow industry to take advantage of resources that are currently not usable.

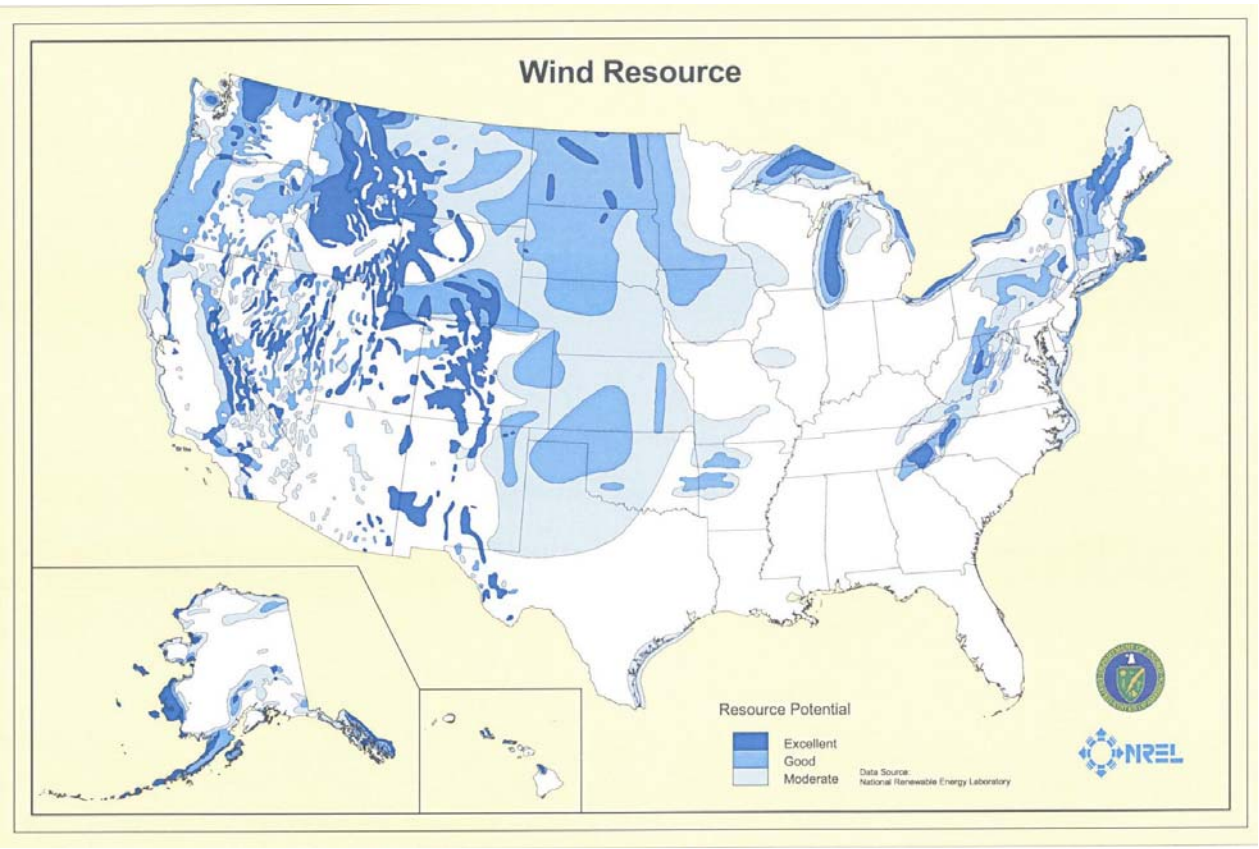


The geothermal resource potential map represents approximate areas where more intensive geothermal uses will most likely be found. Areas labeled as "Good" are more likely to represent direct use applications (e.g., direct heating of buildings, aquaculture, greenhouses). Areas labeled as "Excellent" represent areas where electricity applications are potentially possible.

1.2.4 Wind

Wind power uses the naturally occurring energy of the wind for practical purposes like generating electricity, charging batteries, or pumping water. Wind turbines capture the kinetic energy in the wind, converting it into electrical energy. Utility-scale turbines are mounted on tall towers, usually 100 feet or more above the Earth's surface where the wind is faster and less turbulent. In utility-scale power applications, anywhere from one or two to several hundred turbines are connected to the utility grid, providing electricity when the wind blows.

For over a decade, wind energy has been the fastest-growing energy technology worldwide, achieving an annual growth rate of over 30 percent. In 2001, worldwide installed wind capacity surpassed 23,000 MW. In the United States, more than 1700 MW of new wind projects were installed in 2001, bringing total U.S. installed capacity to approximately 4200 MW. Wind energy project development in the Great Plains and the Midwest was particularly strong, tapping into the large wind resource there. Factors contributing to this boom include state legislative requirements for greater use of wind power, the falling cost of wind energy, and the benefits of wind energy in competitive utility markets. Wind energy accounts for 6 percent of renewable electricity generation and 0.1 percent of total electricity supply. However, advances by research labs, universities, utilities, and wind energy developers have cut wind energy's costs by more than 80 percent during the last twenty years. The industry is poised for continued growth. In the U.S., abundant energy potential can be found in the Northeast, the Great Plains, and the West. In addition, developers are evaluating the potential for offshore wind energy production on the U.S. Outer Continental Shelf.

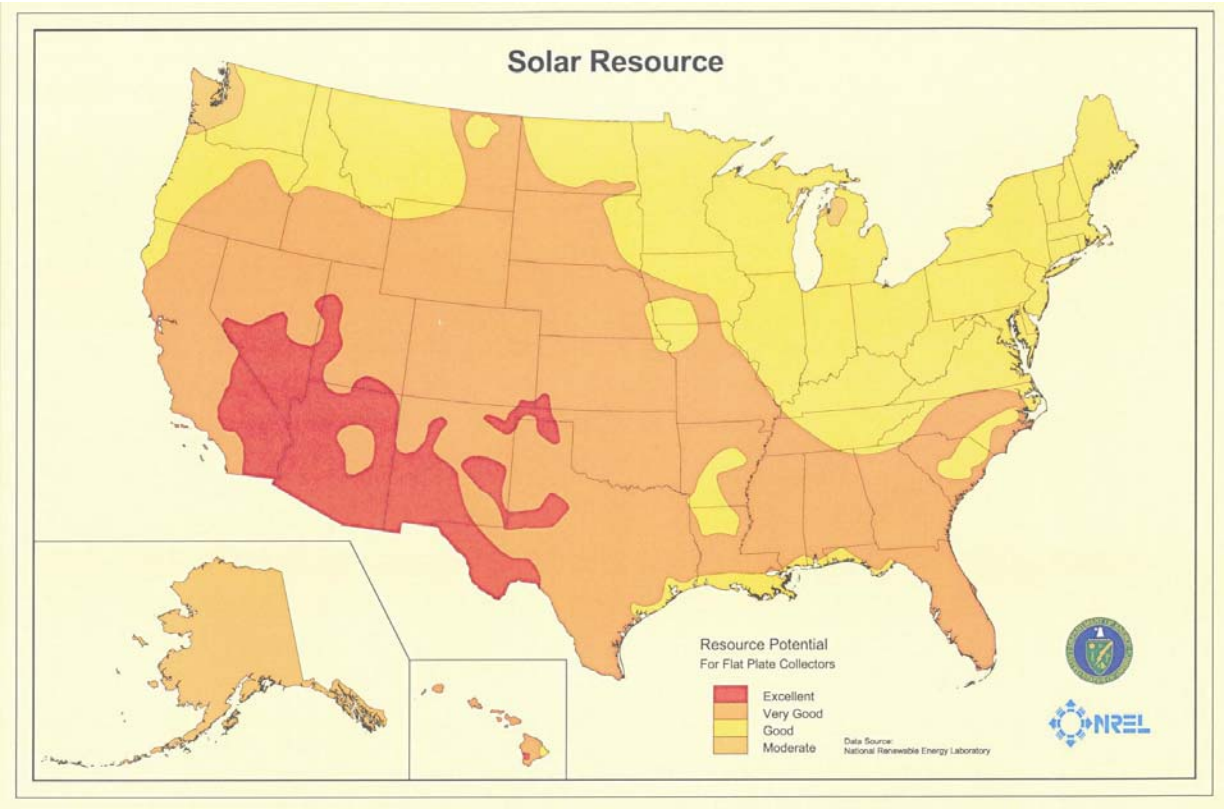


Areas designated as "Excellent" have wind power class 5 or greater and are suitable for utility-scale wind energy applications. Areas designated as "Good" have wind power class 4 or better and are also suitable for utility scale wind energy applications. Areas designated as "Moderate" have wind power class 3 or greater and are suitable for small wind turbine applications. White areas are less than Class 3 and are generally not suitable for wind energy applications.

1.2.5 Solar

Sunlight, or solar energy, can be used to generate electricity, heat water and meet the various energy needs of buildings, including heating, cooling, and lighting. Currently, there are two main technology paths for capturing the sun's energy. Photovoltaic (solar cell) systems use semiconductor materials similar to those used in computer chips to capture the energy in sunlight and to convert it directly into electricity. Photovoltaic cells have been used in everything from the solar cells in calculators to the space station "Freedom." Concentrating solar power (CSP) systems use a variety of mirror configurations to create a high intensity heat source that in turn can be used to generate electricity through a steam turbine or a heat engine. CSP systems range from kilowatt-scale systems (e.g., solar dish/engines), which are ideal for distributed and remote power applications, to multi-megawatt systems (e.g., parabolic troughs and power towers) that, with proven thermal storage, are able to provide dispatchable power to meet around-the-clock energy needs.

There are currently 354 MW of solar trough systems operating in the California desert. Solar energy accounts for one percent of renewable electricity generation and 0.02 percent of total U.S. electricity supply. While solar energy technologies are well-established in high value markets like remote power, satellites, communications, and navigational aids, continued research is needed to reduce costs and improve performance to enable broader market penetration.



This map below shows the solar resources available for non-tracking flat plate collectors oriented at latitude tilt. Values range from about 3,500 Watts/m^2/day in the Pacific Northwest and portions of Alaska to about 7,000 Watts/m^2/day in portions of the Southwest. Thus, suitable sources exist throughout the entire U.S. for photovoltaic or solar hot water system usage.

1.2.6 Hydropower

One type of renewable energy, hydropower, has long provided a significant contribution to the U.S. energy supply and today is competitive with other forms of conventional electricity. There are three different types of hydropower: impoundment, diversion, and pumped storage. An impoundment facility, typically a large hydropower system, uses a dam to store river water in a reservoir. The water may be released either to meet changing electricity needs or to maintain a constant reservoir level. A diversion facility channels a portion of a river through a canal or penstock. It may not require the use of a dam. When the demand for electricity is low, a pumped storage facility stores energy by pumping water from a lower reservoir to an upper reservoir. During periods of high electrical demand, the water is released back to the lower reservoir to generate electricity.

Hydroelectric power facilities range in size from large power plants that supply many consumers with electricity to small and micro plants that individuals operate for their own energy needs or for power sales to utilities. The total U.S. hydropower capacity—including pumped storage facilities—is about 95,000 megawatts. Researchers are working on advanced turbine technologies that will not only help maximize the use of hydropower but also minimize adverse environmental effects.

“Low impact” hydropower refers to hydroelectricity from projects that are designed and operated to minimize environmental impacts to their local environments. The specific definitions of this "clean" hydropower are quite variable but it is important to note that low-impact is not necessarily the same as "low-head" or "low-power," or "small hydro" (less than 15 MW). At this time, there is no broadly accepted definition of low impact hydropower, because the determination of impacts is a very site-specific process that has extensive data requirements. The development of standardized mitigation practices for hydropower could help solve this problem.

A preliminary assessment to identify and confirm low head, low power resources is being sponsored at DOE’s Idaho National Engineering and Environmental Laboratory in conjunction with the U.S. Geological Survey. Low head/low power electrical generation is an attractive source of electricity in remote locations and locations where there is a local need for power, but a utility-scale hydropower installation is not practical. For example, a proof-of-process study evaluating the hydropower potential in the Arkansas-White-Red hydrologic region estimated it to be approximately 5 GW, of which about 2 GW was undeveloped, low head/low power potential.

1.3 Department Responsibilities for Federal Lands

Federal lands are a combination of public domain lands (includes state property) and lands administered by other Federal agencies. Different Departments have various definitions and missions related to Federal lands and statutory authorities vary. Though jurisdictions and procedures may be complicated, the vast amount of Federal lands across the nation provides a tremendous opportunity for locating renewable energy projects. Below is a brief overview of Federal lands within the purview of DOI, USDA, and DoD, focusing on the estimated total acreage.

The total amount of Federal land under Interior's stewardship is 437 million acres as shown in the table below. Also, there are 56 million acres of land held in trust status by the Bureau of Indian Affairs on behalf of Indian tribes and individuals. The Minerals Management Service Offshore Minerals Management Program has jurisdiction over approximately 1.76 billion acres of the U.S. Outer Continental Shelf.

Federal Land under DOI Stewardship

Administered By	Total acreage (in millions)
Bureau of Land Management	262
National Park Service	79
Fish and Wildlife Service	90
Bureau of Reclamation	6
Total	***437***

The U.S. Department of Agriculture manages the National Forest System lands including National Forests, Grasslands, and other areas which have been transferred to the Forest Service for administration. The Forest Service manages 192 million acres in the U.S. and its territories.

The Department of Defense is the third largest Federal land manager in the U.S. It manages 25 million acres of land on 425 major installations.

2.0 SUMMARY STATUS OF FEDERAL DEPARTMENT ACTIONS

The chart below reports a comprehensive list of Federal Department actions, from January 2001 through April 2002, related to increasing production of renewable energy on Federal lands. All four Departments (DOI, DOE, USDA, and DoD) are combined into one chart to provide a complete overview of all related actions. For DOI the following groups participated in the review:

- Bureau of Land Management
- Minerals Management Service
- Bureau of Reclamation
- U.S. Fish and Wildlife
- U.S. Geological Survey
- Bureau of Indian Affairs
- National Park Service
- Office of Policy, Management and Budget

For DOE, the following groups participated in the review:

- Office of Energy Efficiency and Renewable Energy
- National Renewable Energy Laboratory
- Oak Ridge National Laboratory
- Western Area Power Administration
- Bonneville Power Administration

The Forest Service is the primary organization coordinating actions for the USDA. The Office of the Secretary of Defense served as the lead group for DoD.

The chart is organized by cross-cut actions (across all energy resources) and then follows with actions related to each energy resource (solar, biomass, geothermal, wind, and hydropower). It identifies the Department(s) responsible for the action, whether it is completed, and any next steps anticipated. Since many of these actions are under development, we have captured the most current tasks and schedules as of April 2002. In many cases, there is more than one Department involved in executing the project and/or preparing the final product. This report provides the first comprehensive picture of the actions and the Departments involved within each of the five energy resources.

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
	Crosscutting	
DOI – Bureau of Land Management (BLM) ***DOE***	Assisting BLM in preparing a list of highest priority locations for renewable energy (wind, biomass, geothermal, and solar) using GIS maps. These maps, developed with specific screening criteria for each resource potential, will support the revision of future land use plans along with the public participation process.	BLM will integrate data on wind and solar potential into land use plans.
DOE - Western Area Power Administration (WAPA)	Facilitated the organization of the Public Renewable Partnership (PRP), a consortium of municipal and cooperative electric utilities investigating how to expand the use of renewable resources. Through PRP, Western is investigating the feasibility of wind and geothermal resources along the Pacific Northwest / Southwest high voltage DC (HVDC) Line. Wind and geothermal resource analysis will be on some Federal lands.	
DOE ***DOI - BLM***	Developing an Interagency Agreement between DOE - NREL (Golden, CO) and BLM (Denver, CO) to support renewable resource mapping and future priority land use plans.	Establish an Agreement between DOE and DOI to cooperate on siting new renewable energy projects on Federal and/or tribal lands.
Western Governors Association (WGA)	Issued a Memorandum of Understanding (MOU) to establish a framework for cooperation between Western States and the Federal Government to rapidly address immediate energy problems facing the West (August 2001). The WGA Second Environmental Summit was held on April 24, 2002.	
DOE	Facilitating projects on Federal lands that enhance renewable energy production (e.g., woodchip pilot project in Arizona.).	The results of these projects will be published.
DOE - WAPA	Regarding development of renewable resources on Federal lands, the manager of the Non-Hydro Renewable Resource Program has been designated responsibilities for working with its customers.	
DOE - WAPA	Requiring integrated resource planning (IRP) from their power customers. In some circumstances, customer IRP's may identify renewable energy development opportunities on public and tribal lands. WAPA will assist its customers when sites are identified on Federal lands.	

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DoD	Conducting a service-wide study to assess the regional potential of renewable energy generation, transmission, distribution by industry on or near military installations ($6 million appropriations from FY02).	Expecting report in April 2003.
DOI – National Park Service (NPS) ***DOE***	Promoting the use of energy-efficient and renewable energy technologies and practices in our national parks with "Green Energy Parks." Other green energy partnerships perform energy audits at selected parks.	Continue the Green Energy Parks program.
DOI	Established a sustainable energy incentive awards program. This non-cash honor award recognizes individual and program achievements in the efficient use of water and energy and the use of renewable energy sources.	
DOI – BLM	BLM has directed its field offices to prepare a "Statement of Adverse Energy Impact" whenever a proposed decision or action will have a direct or indirect adverse impact on energy development, production, supply, and/or distribution. This will ensure consideration of impacts on renewable energy development when evaluating other potential land use decisions.	Field offices will prepare "Statements of Adverse Energy Impact," as appropriate.
DOI	Established six Energy Saving Performance Contracts (ESPCs) with three more planned. ESPCs allow energy service companies to assume the capital costs of installing renewable energy systems and energy and water conservation equipment.	Each DOI bureau will be asked to consider ESPCs early in the acquisition planning process at their facilities.
DOI	Ensuring that energy efficient practices and designs of renewable energy systems, such as passive solar energy design or geothermal heat pumps, are considered during the planning and design process for new construction and major renovations.	Track energy efficient practices of new construction
All Federal Departments	Responding to Executive Order 13212, Federal agencies are engaged in working to streamline their internal processes for approving energy-related projects while continuing to ensure environmental protection. While the efforts are not focused specifically on renewable energy, any improvements to these processes will benefit renewable energy projects.	

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
	Solar	
DOE	Prepare a Congressional Report in response to language accompanying the FY2002 Energy and Water Development Appropriation. The report will develop and scope out an initiative to fulfill the goal of having 1000 MW of solar power in the Southwest by 2006, with a focus on pursuing opportunities on Federal lands.	Draft report is under review.
DOE - Bonneville Power Administration (BPA)	Executed an agreement to purchase output from a 27.5 kW solar photovoltaic facility located at DOE's Hanford site. Facility is completed. Dedication May 30, 2002.	
DoD – U.S. Marine Corps	Installing solar hot water heating at the Marine Corp Air Station Cherry Point, SC.	
DoD – U.S. Marine Corps	Installing solar pool heating at Marine Corp Air Station Yuma, AZ.	
DoD – U.S. Marine Corps	Installing solar pool heating at Marine Corp Base, Hawaii.	
DoD - U.S. Navy	ESPC awarded in September 2001 for a 750 kW photovoltaic system to be mounted on a parking garage at the Navy Region, Southwest.	Project under construction.
DoD	Installing demonstration projects for solar, photovoltaic, and solar thermal energy sources at the Washington HQ Service, Pentagon; operating and upgrading 10 kW solar dish system at Fort Huachuca, AZ.	
DoD - U.S. Army	Upgraded several aging systems at Fort Huachuca, AZ to bring them back into operation, including installation of new mirrors and controls on the Dish/Stirling system, and replacing the inverter on grid-tied photovoltaic system. ESPC task order at Fort Huachuca, AZ was completed. Included installation of daylighting in 22 buildings and 2 Solarwalls. Fort Huachuca, AZ is working with Sandia National Labs to develop a solar attic technology that will squeeze a little more energy out of the solar radiation on the building roof, while reducing the thermal load on the building.	

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DoD - U.S. Army	Fort Irwin, CA is working with Sandia National Labs to develop several photovoltaic projects.	
DOE ***DOI - Bureau of Indian Affairs (BIA)***	Installing 10 kW solar dish on Indian reservation in New Mexico (2003) for water pumping.	Complete training of Native Americans to operate and maintain dish system.
DOE	Develop state-by-state maps of solar potential to improve solar resource mapping in states with significant development potential.	Provide maps to interested Federal agencies on request.
	Wind	
DOE	Develop state-by-state maps of wind potential (400 meters square) to improve wind resource mapping in states with significant development potential.	Provide maps to interested Federal agencies and Native American Indian Tribes on request.
DOE ***DOI - BLM*** ***DoD***	Screen potential locations for wind projects and develop action plans for short-, intermediate-, and long-term development of wind energy projects on or near military facilities.	
DOI – BIA	Considering development of wind-powered electrical generation facilities with Indian tribes in the northern tier states.	Where feasible, government offices will consider purchasing wind energy power from tribal power generation facilities.
DoD - U.S. Navy ***DOE***	Completed the design and installation of a wind energy plant consisting of 3 NEG Micon 225 kW wind turbines on San Clemente Island, CA and trained operators and maintenance personnel.	Expanding the San Clemente Island project in FY03 for an additional 500 kW through the Energy Conservation Investment Program (ECIP).

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DoD - U.S. Air Force ***DOE***	Assisted the Air Force Space Command in completing the design and installation of a project for 4 NEG Micon 225 kW turbines on Ascension Island.	Plans to double plant capacity.
DoD - U.S. Air Force	Installed wind generation for a total of 500 kW on the Lajes Field, Azores.	
DoD - U.S. Air Force	Installed wind generation for a total of 3 MW at Vandenberg Air Force Base, CA..	
DoD - U.S. Air Force	Performing wind anemometer studies at Vandenberg AFB, CA and F.E. Warren AFB, WY	
DoD - U.S. Army	Installed wind turbines for a total of 650 kW at Camp William, UT.	
DOI – Fish and Wildlife Service (FWS) & BLM	Investigating how to best manage wind power projects to maximize bird conservation and comply with the Migratory Bird Treaty Act and Endangered Species Act. FWS and BLM are working on an MOU on Bird Conservation.	FWS will develop voluntary wind turbine construction, siting, and placement guidelines.
DOE ***DOI - FWS***	Working together to ensure that rotor turbine impacts to birds and bats are minimal.	
DOE	Supporting Federal agencies through education and outreach activities on request. Conduct classes and workshops, provide presentations and materials to military services, as well as BLM, Federal Aviation Administration, NASA, Postal Service, Federal Executive Boards, and others. Provide wind energy presentations and panels at national meetings.	Ongoing
DOE	Implementing a national education and outreach effort with investor-owned utilities, electric cooperatives, public power organizations, energy regulators, and energy consumers to encourage the use of wind power in generation portfolios and the purchase of wind generated power using market-based activities.	Continue education and outreach effort.
DOE - BPA	Purchasing output from 3 wind generation projects located on Federal and private land in Carbon County, WY (Foote Creek 1, 41.4 MW; Foote Creek 2, 1.8 MW; Foote Creek 4, 16.8 MW).	
DOE - BPA	Conducting wildlife baseline surveys for a proposed 50 MW wind generation project on the Blackfeet Reservation.	

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DOE	Implemented a crosscutting anemometer loan program with approximately 10 systems for Federal agencies and 35 loaned to American Indian Tribes.	Evaluate program for future implementation.
DOE - BPA	Completed the installation of anemometers to collect wind data at Federal and tribal sites in Washington and Nevada. Also administering an anemometer loan program in Idaho.	Install additional long-term wind data collection sites in the Pacific Northwest.
DOI – FWS	Design and execute a workshop on the regulatory framework for wind farms. A workshop could identify new technologies, potential environmental impacts, and cutting–edge mitigation techniques. Other Federal agencies, industry, and other stakeholders (e.g., environmental groups) would be invited to participate.	
Geothermal		
DOE – BPA	Executed an agreement with Calpine to purchase the entire 50 MW output of the Fourmile Hill Geothermal Project in the Modoc and Klamath National Forests, CA.	Telephone Flats exploration drilling construction estimated to begin 2003.
DOI – BIA	Funded the Fallon Paiute-Shoshone Tribe (Nevada) to study existing hydrologic, geologic and geophysical data to determine high potential areas for geothermal resources.	The Bureau of Mines and Geology, University of Nevada, Reno will work with the Tribe to acquire, review, and evaluate the data to determine the potential for utilization of geothermal resources.
DOE	Develop next generation Enhanced Geothermal Systems (EGS) technology to more than double the amount of economically viable geothermal resources in the West (majority of geothermal resources in the U.S. are on Federal lands).	Issue second solicitation for Enhanced Geothermal Systems at unproductive Geothermal Fields. Begin development of first facility using Enhanced Geothermal systems technology - August 2002.

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DOE ***DOI - U.S. Geological Survey (USGS)***	Initiate studies to identify and confirm the geothermal resources of the Great Basin.	Beginning in October 2002, it will take approximately three years to complete.
DOE	Sponsoring an outreach effort, GeoPowering the West, which focuses on educating decision makers at all levels of government about geothermal resources and removing barriers to its development on Federal and tribal lands.	
DOE	Issued several solicitations over the past two years that seek to increase geothermal energy production. While not directed specifically at Federal lands, it is likely the projects will end up on Federal sites since an estimated 60% of geothermal resources occur on Federal lands. The projects will result in the development of power generation facilities.	Issue second solicitation for cost-shared exploration drilling (April 2002).
DOE	Prepare a report on the best near-term sites for geothermal development in the Western states. DOE visited State BLM offices in Nevada, California, and Oregon to gather information for the Mines and Minerals Service Geothermal Leasing Division.	Complete final report before FY03.
DOE	Award five subcontracts for development of small scale geothermal power plants.	Begin construction of small-scale power plant to verify new geothermal technology - September 2002.
DOI - BLM	Eliminating the backlog of geothermal lease applications in Nevada by October 1, 2002.	Process all BLM pending geothermal lease applications in the western U.S. by fall 2003.
DOE	Identified high potential geothermal sites on BLM lands to be developed by alternative approach to BLM's NEP Implementation plan. Completed in February 2002.	
DOE ***DoD – U.S. Navy***	Expand the use of geothermal energy production at the Naval Air Warfare Center at China Lake, CA.	Currently testing drilling wells. Completion of analysis anticipated in April 2003.
DOE ***DoD – U.S. Navy***	Navy is in the solicitation process to build a 30 MW geothermal energy production plant at the Naval Air Station in Fallon, NV.	Anticipated award date September 2002.

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DoD – U.S. Army	A $3.5 million geothermal heat pump project at Fort Sill, OK is under design.	Project is scheduled to be funded for construction in FY03 ECIP.
DoD – U.S. Army	Evaluating potential geothermal plant sites at several installations. Fort Irwin, CA and Sierra Army Depot, NV have been ruled out. Hawthorne Army Depot, NV and Yuma Proving Grounds, AZ show significant potential.	Funding is required to drill deep testing wells, and 3-D seismic studies.
DOI - USGS	Performing research to understand geothermal systems related to volcanic hazards.	This research will continue in FY 2003.
	Hydropower	
DOE	Developing state-by-state maps of existing hydropower facilities/projects and locations such as urban areas and certain Federal lands where hydropower is prohibited, in order to encourage retrofit and speed the process of maintaining or increasing hydropower. Completed map of existing capacity. Low head/low power resource assessment in progress.	Provide maps to interested Federal agencies on request.
DOE ***DOI – USGS***	Conducting a proof-of-process study to evaluate the hydropower potential in the Arkansas-White-Red hydrologic region — estimated it to be approximately 5 GW of which about 2 GW was undeveloped, low head/low power potential.	
DOE	Promoting understanding of new, "cleaner" hydropower designs and operation with research and development of advanced hydropower turbines with enhanced environmental performance. Basic R&D will include biological design criteria, computational methods for design and assessment, and new instrumentation and monitoring technology. Testing initiated in September on new helical turbine at Alden Research Laboratory.	Testing to continue into fall 2002.
DOE - BPA ***DoD – U.S. Army Corps of Engineers (Corps)*** ***DOI - Bureau of Reclamation (BOR)***	Investing capital to improve the reliability and the efficiency of the Federal hydroelectric system in the Pacific Northwest Federal Columbia River Power System. This effort is a 12- to 15-year program averaging $100 million of investment annually.	Expected completion by 2016.
DOE	Provide better definitions of low impact projects on Federal lands with an expected report from the Low Impact Hydro Institute.	

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DOI – BOR	Increasing efficiency and capacity at its existing power plants. Also rearranging its power generation schedule to help with morning and afternoon peaks.	Turbine replacements are scheduled for over 20 units.
DOI - BOR	Planning to install, in the first U.S. application of its kind, a high voltage generator, called a Powerformer, to replace an existing aging generator/transformer/circuit breaker set. This will reduce long-term costs and increase efficiency and reliability of electricity production from hydropower. Folsom Power plant near Sacramento, CA, part of the Central Valley Project, has been selected as the site, and evaluations show it to be technically and economically viable.	Power customers have agreed to fund $7.1 million needed for this three-year project, starting in 2003.
DOI ***USDA*** ***Department of Commerce (DOC)***	Develop and sign a Memorandum of Agreement that will ensure consistency among mandatory conditions and recommendations issued by the three Departments in the hydropower licensing process.	
All Federal Agencies	Continue working with the FERC, DOI, USDA, Environmental Protection Agency (EPA), DOC, and other agencies to implement agreements from the Interagency Task Force (ITF) to improve hydroelectric licensing processes.	Ongoing
DOI ***DOC***	Implemented the Mandatory Conditions Review Process (one of the ITF commitments). This is an accelerated decision and documentation schedule for the establishing mandatory conditions and prescriptions on non-Federal hydropower licenses, which encourages collaboration among agencies and licensees earlier in the process.	
USDA – Forest Service (FS) ***DOI*** ***DOC*** ***Environmental Protection Agency (EPA)***	Continue participation with the National Review Group, in discussion with representatives from the hydropower industry and conservation organizations, on potential improvements in the relicensing process for non-federal hydropower projects.	Ongoing

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
DOE ***DOI - FWS***	Develop a "best practices" manual on the design, construction, operation, and maintenance of fishways at hydropower projects. The product will help resolve interagency disagreements over environmental mitigation requirements during licensing of new projects and relicensing of existing projects.	
	Biomass	
DOE ***USDA***	Cost-sharing six community-based demonstrations of the Community Power Corp. (CPC) Biomax-15 distributed power system through the Forest Products Lab in Madison, WI. For example, a system has been demonstrated at the Hoopa Indian Reservation in Northern California using wood residues. The USDA has solicited applications from communities largely in the West for projects that utilize forest residues for production of power to stimulate community economic development.	
DOE	Examining the potential for harvesting switchgrass from Conservation Reserve Program (CRP) land for cofiring in an existing coal utility boiler in Ottumwa, IA. This is part of the Biomass Power for Rural Development initiative with the Prairie Lands Cooperative in south-central Iowa in the lead. The USDA has approved this use of the CRP land on a pilot basis. The project has successfully conducted test burns of harvested switchgrass feedstock and is in the process of designing and installing a more automated feed system in order to conduct long-term testing.	
DOE ***USDA - Rural Utility Service (RUS)***	Planning a demonstration of biomass gasification technologies at a rural utility. These projects will most likely use forest thinnings removed to reduce fire danger and be sited at rural utility power plant sites. In addition, USDA/Forest Service is developing a notice of interest for using the 200,000+ acres/year that they foresee will require thinning.	
DOE ***USDA***	Conduct R&D of model energy crops (e.g., switchgrass) at USDA Development Centers.	
DoD US - Air Force	Negotiated renewable energy contract at Edwards AFB, CA for 60% of base load. First three years 25% will be renewable (biomass & wind) going to 100% for the last 2 years.	
USDA – FS ***DOE***	Pilot test biomass heat and energy distribution in small, rural communities with hazardous fuels reduction efforts. Six 15-KW gasification plants that use combined heat and power will be installed at sites awarded based on competitive evaluation.	Selection of sites will occur in May 2002. Testing will continue through August 2003.

SUMMARY STATUS OF FEDERAL AGENCY ACTIONS (JANUARY 2001 – APRIL 2002)

FEDERAL AGENCY RESPONSIBLE	ACTIONS ONGOING & COMPLETED	NEXT STEPS
USDA – FS	Make small diameter and underutilized wood from National Forests available to communities and businesses seeking to implement biomass-powered CHP units on a fair, equitable, and sustainable basis. The goal is to increase current uses of 17,000 dry tons of biomass per day from National Forests.	
USDA – FS	Expanding current pilot test of the use of soybean fuel for diesel trucks on Federal lands in South Dakota.	
DOI – BLM	Directing field offices to explore opportunities for economical removal of biomass in conjunction with sale of higher-valued products. Both commercial thinning for forest health or productivity and forest management prescriptions for wood fiber production can provide economical removal of fuels suitable for biomass energy generation	Ongoing.
DOI – BLM & BIA	Developing contracting mechanisms to utilize forest residues and hazardous fuels for biomass energy. Some Indian tribes are also investigating the use of biomass fired electrical generation on tribal lands.	Ongoing.
USDA – FS	Accelerate performance-based R&D on biomass and bioenergy to support the NEP and Biomass R&D Act modeled on public-private partnerships. Research supporting Biobased Products and Bioenergy includes low-value material harvesting technology, short rotation cropping systems, hazardous fuels volume estimates, and economic feasibility of producing energy from biomass feedstocks.	

3.0 PROPOSED ACTIONS*

3.1 Continue the Collaborative Work of the Interagency Task Force

The Departments of the Interior and Energy significantly improved the lines of communication among Federal Departments on renewable energy resources on Federal lands by establishing an interagency task force in July 2001. The interagency task force is co-chaired by DOI and DOE with the participation of USDA, DoD, CEQ, FERC, and other interested agencies. The task force will facilitate continuous information exchange regarding proposed and ongoing renewable energy projects and will assist in avoiding duplication of efforts within the Federal Government. The task force is responsible for resolving potential barriers to expanding production of the Nation's renewable energy resources on Federal lands and will elevate significant issues to senior decision-makers. Periodic task force meetings will help streamline future activities, build upon the existing network, and contribute to the continued success of responding to the NEP recommendations.

3.2 Update the Wind Resource Atlas of the United States

The Department of Energy will update the Wind Resource Atlas of the United States, focusing on the potential of this resource on Federal and tribal lands. Currently, DOE is updating wind energy resource potential on a state-by state basis to verify and assimilate new data. The next steps will verify the criteria and possible gaps between states and then consolidate the information into the Atlas. Once completed, this Atlas will provide an overview of the potential resource for power generation development on Federal as well as private lands. For developers, the availability of this information will lower their risks of exploration and project design. In addition, the Atlas will raise the general awareness of the potential benefits of wind energy resource production for state and local stakeholders.

3.3 Establish a Biomass Initiative at the Department of the Interior

The Department of the Interior's biomass initiative will focus on ways to expand biomass production on public lands. These include:

- Each land management agency in DOI will develop its own strategic plan for biomass production. The plan should tie to the National Fire Plan goals of hazardous fuel reduction and/or DOI strategic goals for [a]forest and woodland habitat restoration and species conservation planning. The plan will address strategies to provide dependable, long-term sources of raw material to complement the long-term (20 or more years) investment in infrastructure for new bio-energy plants.
- DOI will evaluate opportunities to reduce planning and preparation costs for biomass contracts and seek ways to increase bid values to receive positive returns on investment in biomass thinning.
- DOI will develop internal and external information and outreach programs on the wide array of biomass benefits and opportunities.

3.4 Assess Geothermal Potential and Promote Geothermal Energy Production in the Great Basin

The U.S. Geological Survey (USGS) will begin a new assessment of the geothermal potential of the Great Basin in Fiscal Year 2003. Nevada occupies most of the Great Basin, which also encompasses western Utah, southeastern Oregon, California east of the Sierra, and southern Idaho. This assessment will result in estimates of the known and undiscovered geothermal resources of the Great Basin. USGS will work with DOE, BIA, BLM, the Forest Service, and industry to produce the final report.

3.5 Reduce the Delays in Geothermal Lease Processing

The Bureau of Land Management is committed to processing all pending geothermal lease applications by fall 2003. BLM will begin processing all geothermal lease applications within 90 days of filing an application, with the objective of completing such processing within six months after commencement of the process.

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* The Secretary of the Interior has selected these proposed actions for inclusion in this report. For a comprehensive list of Interior's proposals, see "*Renewable Energy and the Department of the Interior: A Report to the Secretary,*" which is posted on our Web site at www.doi.gov.

3.6 Consider Drafting an Executive Order on Increasing Renewable Energy on Federal Lands

The usefulness of drafting a new Executive Order focused on increasing renewable energy on Federal lands will be considered. During the process of preparing this report, DOE reviewed all Executive Orders, from 1936 to the present, relating to renewable energy production. There were five Executive Orders identified, but none specifically focused on renewables on Federal lands. Given the extensive availability of Federal lands, particularly in the Western states, and the tremendous potential of biomass, wind, solar and geothermal energy resources, Federal Departments need to find better methods for developing renewable energy projects. An Executive Order will allow the Administration to improve the direction of the Federal Government in this area and focus resources and actions where they are most needed.

3.7 The Department of the Interior will Establish an "Ombudsman"

The Secretary of the Interior will establish an "ombudsman" within the Department. The ombudsman will coordinate with senior executives and managers from industry and other Federal Departments, especially DoD, DOE, and the Forest Service. The ombudsman will know the status of all projects related to the five types of renewable energy resources, will serve as a clearinghouse for information and issues causing concern or delay, and will facilitate resolution of those issues.

APPENDICES

APPENDIX A. LIST OF ABBREVIATIONS AND ACRONYMS

AFB	Air Force Base
BIA	Bureau of Indian Affairs
BPA	Bonneville Power Administration
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CEQ	Council on Environmental Quality
CHP	Combined Heat and Power
CPC	Community Power Corp
CRP	Conservation Reserve Program
CSP	Concentrating Solar Power
DOA	Department of Agriculture
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
ECIP	Energy Conservation Investment Program
EIA	Energy Information Administration
EGS	Enhanced Geothermal System
E.O.	Executive Order
EPA	Environmental Protection Agency
ESPC	Energy Saving Performance Contract
FEMP	Federal Energy Management Program
FERC	Federal Energy Regulatory Commission
FS	Forest Service
FY	Fiscal year
GIS	Geographic Information System
GW	Gigawatts
HVDC	High Voltage Direct Current Line
IRP	Integrated Resource Planning
ITF	Interagency Task Force
kW	Kilowatt
kWh	Kilowatt hour
LIHI	Low Impact Hydropower Institute
MOU	Memorandum of Understanding
MSW	Municipal Solid Waste
MW	Megawatts
NEP	National Energy Policy
NPS	National Park Service
NREL	National Renewable Energy Laboratory
OPT	Office of Power Technologies
ORNL	Oak Ridge National Laboratory
PRP	Public Renewable Partnership
PV	Photovoltaic
R&D	Research and Development
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WAPA	Western Area Power Administration
WGA	Western Governors' Association

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Appendix B. EXECUTIVE SUMMARY
National Conference on Opportunities to Expand Renewable Energy on Public Lands

In May 2001, Vice President Cheney's National Energy Policy (NEP) Development Group recommended to the President that the Department of the Interior (DOI) and the Department of Energy (DOE) work together to increase production of renewable energy on Federal lands. Specifically, DOI and DOE were to re-evaluate access limitations to Federal lands to increase renewable energy production; and DOI was to determine ways to reduce the delays in geothermal lease processing as part of the permitting review process.

In response to these recommendations, DOI and DOE co-sponsored a national conference on November 28, 2001, "Opportunities to Expand Renewable Energy on Public Lands." The goal of the conference was to provide a forum in which interested individuals and organizations could share their opinions on increasing renewable energy production on Federal lands. Over 200 senior executives, representing energy industries and Federal and state government agencies attended this successful conference, which was hosted by DOI in Washington, D.C. The conference attendees agreed there is tremendous potential for expanding production of renewable energy on Federal lands.

Secretary Gale Norton from DOI, one of the seven senior-level government conveners (see Table 1 below) opening this conference, stated, "Enhancing production of renewable energy is important for energy stability and a healthy environment." David Garman, DOE's Assistant Secretary of Energy Efficiency and Renewable Energy, representing Secretary Spencer Abraham, addressed the importance of renewable energy production and pointed out that the cost of electricity from renewables has dropped dramatically over time and substantial resource potential exists across the country, particularly in the West (see Exhibits 1 and 2 below). Several Congressional representatives provided comments, including Senator Byron Dorgan (D-ND) and Congressmen Zach Wamp (R-TN) and Mark Udall (D-CO).

DOI prepared a list of almost 90 suggestions put forth by the participants during the meeting. Because 47 percent of geothermal energy is produced on public lands, it's not surprising that almost half of the conference suggestions were related to geothermal development. Other issues related to solar, biomass, wind, and hydropower, including energy production on military and tribal lands. The suggestions clustered around the following four categories:

1. Regulatory and process issues.
2. Financial incentives.
3. Data quality and land use plans.
4. Budget issues and staffing.

Over half of all the suggestions across technologies lie within the first category (regulatory and process issues). Reducing conflicts and duplication among agencies, in order to expedite projects, was identified as a significant barrier. For example, the minimum 2-3 year timeframe required for the National Environmental Policy Act (NEPA) compliance and permitting process is a central concern for timely project implementation. About 20 percent of the suggestions related to the need for better data quality and land use plans.

The Summary of Suggestions Table included in this CD-ROM provides a comprehensive list of the 90 suggestions and comments as compiled by DOI. The conference setting also provided for "Lunch Roundtable Discussions." These informal discussions, hosted by senior executives from DOI and its bureaus (see Table 2), provided a chance for more-detailed discussions about the opportunities and impediments. In addition, there were five technical panels, representing industry and academia, dealing with each of the renewable resource areas (see Table 3).

DOI and DOE, along with other Federal entities, are working diligently to address these suggestions. For example, DOI is drafting an Action Plan on how to increase renewable energy production on Federal lands and how to respond to the range of conference suggestions. One of the conference suggestions was to form an interagency task force to marshal technical and financial resources to address the NEP. In fact, DOI and DOE had already formed an Interagency Task Force last summer, comprising representatives from various bureaus within DOI, DOE, Federal Energy Regulatory Commission, U.S. Forest Service, and the Council on Environmental Quality.

This Interagency Task Force is focusing on the best ways to respond to NEP recommendations and track cooperative efforts underway in the field. Next steps will include development of an implementation plan and interaction with key stakeholders. Products of these interagency efforts may include reports, suggested revisions to Federal policies and procedures, including potential Executive Orders, consideration of renewables within all of BLM's land use plans, and proposals for future Congressional debate. By May 2002 Secretaries Norton and Abraham will release recommendations to the President on increasing renewable energy production on Federal lands.

This CD-ROM provides an overview of the November 2001 conference in Washington, D.C., including the Summary of Suggestions and Lunch Roundtable Discussions mentioned above. It contains press releases, a list of speakers, their submitted written presentations, and a pre-conference registration listing of attendees. For your convenience, this file contains hyperlinks from the Table of Contents.

Table 1. Government Conveners		
Name of Federal Agency	**Name of Convener**	**Title of Convener**
The Department of the Interior	Honorable Gale Norton	Secretary of the Interior
Department of Energy	Mr. David Garman	Assistant Secretary for Energy Efficiency and Renewable Energy
Department of Agriculture	Mr. Jim Moseley	Deputy Secretary of Agriculture
Department of Defense	Mr. Ray DuBois	Deputy Undersecretary of Defense for Installations and Environment
Council on Environmental Quality	James Connaughton	Acting Chairman, President's Council on Environmental Quality
Environmental Protection Agency	Linda Fisher	Deputy Administrator EPA
Federal Energy Regulatory Commission	Mark Robinson	Director, Office of Energy Projects

Table 2. Lunch Roundtable Discussion Hosts		
Table Host Name	**Title**	**Agency Representing**
James Cason	Associate Deputy Secretary	DOI
Scott Cameron	Deputy Assistant Secretary Policy, Management and Budget	DOI
Tom Fulton	Deputy Assistant Secretary Land and Minerals Management	DOI
Tom Weimer	Deputy Assistant Secretary Water and Science	DOI
Nina Hatfield	Acting Director	Bureau of Land Management
Marshall Jones	Acting Director	Fish and Wildlife Service
Lucy Querques Denett	Acting Director	Minerals Management Service
Charles "Chip" Groat	Director	USGS
Suzanne D. Weedman	Coordinator Energy Resources Program	USGS
Walter Cruickshank	Associate Director Policy and Management Improvement	Minerals Management Service
Dan Ashe	Chief of National Wildlife Refuge System	Fish and Wildlife Service
Jim James	Energy Official	Bureau of Indian Affairs
Margaret Sibley	Director of Policy	Bureau of Reclamation
Glenda Owens	Acting Director	Office of Surface Mining

Table 3. Industry & Academic Representatives		
First Panel: Geothermal		
Name of Panelist	**Title**	**Company**
Jonathan Weisgall	Vice President President	MidAmerican Energy (CalEnergy) Geothermal Energy Association
John Miller	Vice President	Calpine Corporation
Ross Ain	Senior Vice President	Caithness Energy, L.L.C.
Jane Long	Dean	Macke School of Mines, University of Nevada (Reno)
Second Panel: Wind		
Name of Panelist	**Title**	**Company**
Jaime Steve	Director of Government Affairs	American Wind Energy Association
Bob Gates	President & CEO	Enron Wind Development Corp.
Mike Azeka	Senior Vice President	SeaWest
Ron Lehr	Former Commissioner	Colorado Public Utility
Third Panel: Solar		
Name of Panelist	**Title**	**Company**
Chet Farris	President Executive VP & CEO	Solar Energy Industries Siemens Solar Industries
Atul Arya	CEO	BP Solar
Jim Trotter	Member	Photovoltaic Distributors Coalition
Jeff Tester	Director	Massachusetts Institute of Technology Energy Laboratory
Fourth Panel: Biomass		
Name of Panelist	**Title**	**Company**
Inge Frethdim	President & CEO	FERCO
William Carlson	Vice President & General Manager	Wheelabrator Environmental Systems
Pat Gruber	Vice President	CargillDOW
Fifth Panel: Environmental, Utilities, and Hydropower		
Name of Panelist	**Title**	**Company**
Dean Gosslin	Vice President	Wind Generation, FPL Energy
Phil Dutton	Vice President	United American Hydropower Corporation
Randy Udall	Director	Community Office for Resource Efficiency
Hank Habicht	CEO	Global Environment & Technology Foundation

Exhibit 1

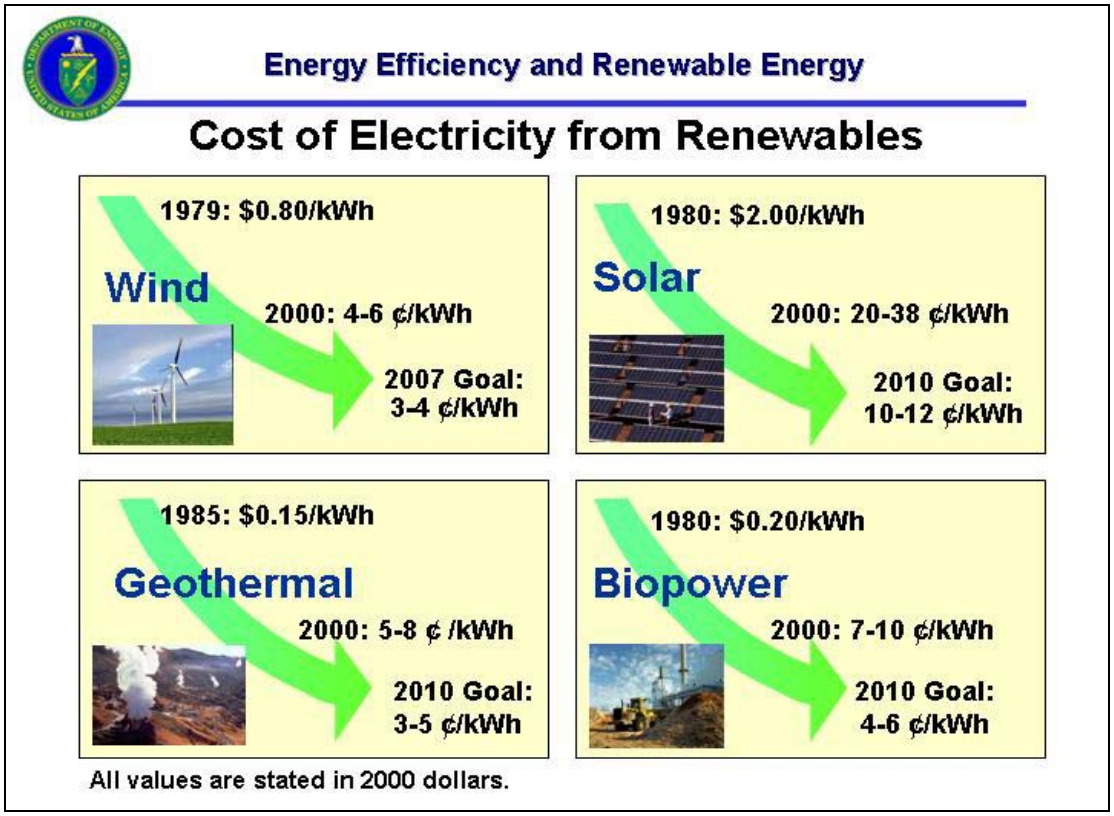
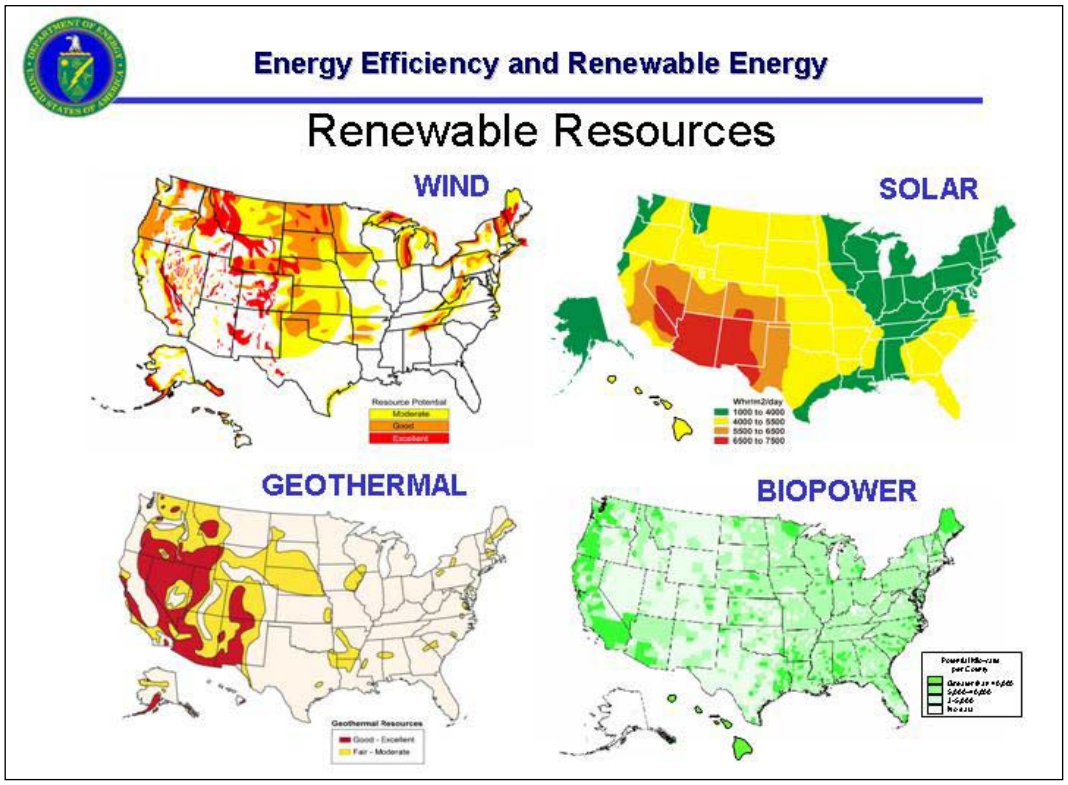


Exhibit 2



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APPENDIX C. MEMORANDUM OF UNDERSTANDING AMONG THE U.S. DEPARTMENT OF ENERGY, U.S. DEPARTMENT OF THE INTERIOR U.S. DEPARTMENT OF AGRICULTURE U.S. ENVIRONMENTAL PROTECTION AGENCY COUNCIL ON ENVIRONMENTAL QUALITY AND THE MEMBERS OF THE WESTERN GOVERNORS' ASSOCIATION REGARDING ENERGY DEVELOPMENT AND CONSERVATION IN THE WESTERN UNITED STATES

I. Purpose

The purpose of this Memorandum of Understanding (MOU) is to establish a framework for cooperation between Western States and the Federal government to rapidly address immediate energy shortages and longer-term energy problems facing the West. This effort will involve the States and the Federal government, and will assist the work of the federal interagency task force that President Bush created under Executive Order 13212 to expedite energy-related projects. Other stakeholders may be called upon from time to time to provide advice to the extent permitted by law.

II. Objective

To encourage cooperation among the U.S. Department of Energy (DOE), U.S. Department of the Interior (DOD, U.S. Department of Agriculture (DOA), U.S. Environmental Protection Agency (EPA), the Council on Environmental Quality (CEQ) and the members of the Western Governors' Association (WGA) and for the following purposes:

(1) Addressing our energy needs while protecting and improving environmental conditions;

(2) Increasing the use of new, cleaner technologies and renewable energy sources;

(3) Encouraging energy efficiency and energy conservation;

(4) Increasing energy supplies;

(5) Building needed energy infrastructure; and

(6) Improving intergovernmental systems that authorize and enable planning, financing, permitting and siting of energy facilities;

Energy prices and supplies in the Western United States have become uncertain and highly volatile over the past year. Electricity and natural gas transmission systems may no longer be adequate to provide reliable, secure energy to citizens, businesses and governmental and national defense facilities. Due to unique Western land ownership patterns, widely dispersed population centers and government facilities, and the isolated nature of the Western Interconnection for electricity transmission, this situation poses unique policy, management, and investment problems that must be addressed to ensure protection of public health, welfare, the environment and national security.

The Nation's energy policy must be broad-based and flexible so that each state and region in the nation can maximize its contributions to the economy and well being of its citizens. The signatories to this agreement and the offices, agencies and states they represent are committed to carrying out both short- and long-term, cost-effective efforts to resolve the energy crisis in the Western States. This may involve: obtaining and sharing necessary public information relating to energy markets and emerging energy technologies; identifying and implementing cooperative strategies for research, development, demonstration and adoption of policies, procedures and programs that will promote delivery of new energy supplies, greater efficiency, more sustainable conservation practices and new or improved energy technologies; and assessing the effectiveness of implementation policies and practices.

The signatories are committed to market-based approaches so that the selection and financing of energy facilities and strategies, including those for research and development, will be based on wide competition, broad participation and market discipline.

The signatories seek a regional, integrated, cooperative approach to identifying solutions to problems. The proposed approach for this MOU will bring together the signatories or their designated representatives to share information and collaborate.

IV. Authorities

Nothing in this MOU alters the responsibilities or statutory authorities of DOE, DOI, DOA, EPA, CEQ or the WGA, or its member States and insular areas' This MOU does not supersede existing agreements among any of the signatories.

V. Responsibilities

Consistent with Executive Order 13212, the signatories agree to collaborate on workplans and reports to address energy needs and requirements. Furthermore, the signatories will seek consensus on governmental approaches, including regulatory practices that affect the development of energy supply, conservation, and efficiency in the West, and policies that affect environmental mitigation of such development. Such reports will discuss current funding levels and allocations for governmental energy activities, the most pressing energy production, transmission and efficiency problems, and suggestions for demonstration and/or

implementation of the most promising potential solutions. The signatories will meet by October 15, 2001 to begin development of workplans.

VI. Effective Date and Duration

This MOU becomes effective upon signature by all parties. The MOU will continue in effect for three (3) years or until modified by mutual consent. Participation by any signatory member shall be terminated at the request of any signatory with ninety (90) days prior notice.

Secretary of Energy	8/13/01 Date
Secretary of the Interior	8/13/01 Date
Secretary of Agriculture	8/27/01 Date
Administrator of the Environmental Protection Agency	8/28/01 Date
Chairman, Council on Environmental Quality	8/14/01 Date

FOR THE WESTERN GOVERNORS' ASSOCIATION AND ITS MEMBER STATES

Chairman of the Western Governors' Association	8-13-01 Date
Vice Chair of the Western Governors' Association	8/14/01 Date
Lead Governor of the Western Governors' Association	8/13/01 Date
Lead Governor of the Western Governors' Association	8/13/01 Date

APPENDIX D. EXECUTIVE ORDERS

Provisions Dealing with Renewable Energy Production and Use on Federal Lands

Executive Order	Date	Presidential Term	Relevant Provisions
E.O. 13211 – Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use	May 18, 2001	George W. Bush	Directs Federal agencies to prepare a "Statement of Energy Effects" when undertaking certain agency actions including regulatory actions on energy supply, distribution, or use.
E.O. 13212 – Actions To Expedite Energy-Related Projects	May 18, 2001	George W. Bush	Directs Federal agencies to take appropriate actions, to the extent consistent with applicable law, to expedite project that will **increase the production, transmission, or conservation of energy.** **Establishes Council on Environmental Quality to monitor and assist agencies in the review of permits or similar actions** to accomplish this goal including the coordination of Federal, state, local, tribal, permitting activities.
E.O. 13123 – Greening the Government through Efficient Energy Management	June 3, 1999	William J. Clinton	Directs Federal agencies to reduce energy use by 30 percent by 2005 and 35 percent by 2010 based on 1985 consumption levels. Directs OMB, in consultation with DOE and other agencies to develop agency energy scorecards and scoring system to evaluate each agency's progress in meeting goals; **scoring will take into account a range of actions including acquisition of electricity from renewable energy sources.** **Agencies shall survey local natural resources to optimize use of available biomass, bioenergy, geothermal, or other naturally occurring energy sources.** To advance the greenhouse gas and renewable energy goals of this order, and reduce source energy use, **each agency shall strive to use electricity from clean, efficient, and renewable energy sources.** Directs DOE, in collaboration with other agencies, to **develop goals for the amount of energy generated at Federal facilities from renewable energy technologies and to support efforts to develop standards for the certification of low-environmental impact hydropower facilities in order to facilitate the Federal purchase of such power.**

Executive Order	Date	Presidential Term	Relevant Provisions
			Guidance from the Secretary of Energy, issued July 21, 2000, included Guidance on the Federal Government Renewable Energy Goal, dated May 15, 2000, that set the goal at the equivalent of 2.5% of Federal electricity use by 2005. At that time, the goal equaled 1355 gigawatt-hours per year based on FY2000 electricity use. Projects facilitated by Federal agencies, particularly those on Federal lands, qualify to meet the goal.
E.O. 12512 – Federal Real Property Management	April 29, 1985	Ronald Reagan	To ensure the effective and economical use of America's real property and public land assets, **establishes a focal point for the enunciation of clear and consistent Federal policies regarding the acquisition, management, and disposal of properties, and assures management accountability for implementing Federal real property management reforms.** Directs Federal agencies to establish internal policies and systems of accountability to ensure effective use of real property in support of mission-related activities, consistent with Federal polices regarding the acquisition, management, and disposal of such assets. The Departments of Interior and Agriculture shall take such steps as are appropriate to improve their **management of public lands and National Forest System lands** and shall develop appropriate legislative proposals necessary to facilitate that result.

APPENDIX E. PRESIDENT'S FY 2003 BUDGET REQUEST[1,2]

Highlights of Programs Dealing with Renewable Energy on Federal Lands

Department of Agriculture (USDA)

PROGRAM OFFICE	ENERGY RESOURCES	COMMENTS
Forest Service *(There are 156 National Forests, 20 National Grasslands, and nine land utilization projects located in 44 states, Puerto Rico, and the Virgin Islands covering approximately 192 million acres of public land; These lands are managed under multiple-use and sustained-yield principles. Includes natural resources of timber, minerals, range, wildlife, outdoor recreation, watershed, and soil).*	Forest and Rangeland Research Office Develops and communicates scientific information to protect, manage, use, and sustain natural resources in natural forests. An estimated 17,000 dry tons per day of biomass from NFS lands are being used in energy production, with potential and actual need for much more as a result of an initiative to reduce the risk of wild fire. Geothermal production is only at 20 MW but the potential for non-electrical use is substantial. Wind and solar resources have not been inventoried.	Additional funding in the FY 2003 President's Budget includes $10 million to promote use of small diameter trees for biomass energy use, $5 million for bio-energy and bio-based (National Energy Plan). Product research and outreach, and $5 million to conduct environmental analyses and ensure environmental protection for energy exploration and production including geothermal energy.

Department of Defense (DoD)

PROGRAM OFFICE	ENERGY RESOURCES	COMMENTS
Army Corps of Engineers *(The Corps' mission is to provide quality, responsive engineering services to the nation including; planning, designing, building & operating water resources & other civil works projects and providing design & construction management support for other Defense & Federal agencies).*	Army entered into an agreement with Bonneville Power Administration for direct funding of hydropower activities in the Pacific Northwest beginning in FY 1999. Budget request proposes direct funding of routine hydropower operations and maintenance for the three other Federal Power Marketing Administrations (PMA) that sell power generated at Corps of Engineers facilities. Funding is provided on a reimbursable basis of $149 million from PMA receipts. The Corps also uses fees levied by the Federal Energy Regulatory Commission on private users of Federal property to construct, operate, and maintain Federal water management facilities.	

[1] Sources: Fiscal Year 2003 APPENDIX, Budget of the United States Government and Individual Federal Agency Budget Document.
[2] There may be other ongoing activities at other agencies related to renewable energy that are not specifically called out here.

PROGRAM OFFICE	ENERGY RESOURCES	COMMENTS
DoD **Office of the Deputy Under Secretary of Defense** *(ODUSD's [Installations and Environment][Utilities and Energy Use] mission is to ensure that the DoD utility infrastructure is secure, safe, reliable, and efficient, that energy and water commodities are procured effectively and efficiently, and that the components maximize energy and water conservation efforts and advance the goals of Executive Order 13123*).	Energy Conservation Investment Program (ECIP) (MILCON, Defense-wide) 10USC2865 authorizes the Secretary of Defense to carry out a military construction project for energy conservation.	The FY 2003 budget request includes $49.5 million for the ECIP program. Of the $49.5 million, $11.9 million (24%) are dedicated to renewable energy projects. Renewable energy projects for FY 2003 include installation of geothermal heat pumps, wind turbines, solar heating, and photovoltaic demonstrations.

Department of Energy (DOE)

PROGRAM OFFICE	ENERGY RESOURCES	COMMENTS
Office of Energy Efficiency and Renewable Energy *(EERE's mission is to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships that: enhance energy efficiency and productivity; bring clean, reliable and affordable energy technologies to the marketplace; and make a difference in the everyday lives of Americans by enhancing their energy choices and their quality of life).*	Federal Energy Management Program -Distributed Energy Resources/Combined Heat and Power: Technical assistance and direct funding to Federal facilities to implement 10 large-scale projects. Federal Energy Management Program –Technical Assistance and Guidance: A portion of these funds support Federal use of renewable energy to help Federal agencies meet the goal under E.O. 13123 of the equivalent of 2.5 percent of Federal electricity use by 2005. The renewable energy goal is currently 1422 Gigawatt hours per year based on FY 2000 electricity use. Projects facilitated by Federal agencies, particularly those on Federal land, qualify to meet the goal. FEMP will provide technical assistance to those agencies requesting help, as funds are available. Office of Biomass - Small Modular Biopower (SMB) Program: Conduct collaborative activities with the Forest Service utilizing SMB systems in forest management schemes; begin investigations utilizing high moisture feedstocks and explore opportunities in landfill gas recovery. Biomass - Feedstock Production: Conduct R&D of model energy corps (e.g., switchgrass) at USDA Development Centers	

PROGRAM OFFICE	ENERGY RESOURCES	COMMENTS
	Distributed Energy, Electric Infrastructure and Reliability -Distributed Energy Resources Electric System Integration: Conduct interconnection field validation testing Nevada Test Site Office of Geothermal: Collaborating with DOI's USGS to conduct studies to identify and confirm geothermal resources in the Great Basin region of the Western United States. The Department expects to spend up to $6 million on exploration research and field development activities related to increasing the geothermal resource base Wind Energy Systems – Wind Powering America: A portion of these funds supports education and outreach to Federal agencies, and activities to catalyze opportunities for wind power development on Federal lands	

Department of the Interior (DOI)

PROGRAM OFFICE	ENERGY RESOURCES	COMMENTS
Bureau of Land Management *(BLM administers 262 million acres of America's public lands, located primarily in 12 Western States. The BLM sustains the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations).*	BLM manages geothermal resources on Federal lands; FY 2003 budget request would double geothermal leasing on Federal lands. A total of a $10.2 million increase will be directed to more responsive management of oil and gas, geothermal, coal, mineral materials, energy-related rights-of-way, and Indian trust responsibilities. BLM's Land and Resource Management Trust Fund provides for the acceptance of contributed money or services for resource development, protection, and management. Request includes a $750,000 increase for renewable energy projects to include geothermal, hydropower, and wind; $300,000 would be used for licensing hydropower projects in California, Oregon, and Washington; $100,000 for wind energy studies at DOE's National Renewable Energy Laboratory; and a $350,000 increase for the Geothermal Resources program to identify constraints to access to geothermal resources in 2003. The goal is to improve access and enable streamlining of the application process and make additional lands available for renewable energy production in California, Nevada, Utah, Oregon, and New Mexico.	Energy and natural resources generate the highest revenue values of any uses of the public lands. Federal geothermal resources produce over $15 million of revenue and generate 630 megawatts of electric power per year.

PROGRAM OFFICE	ENERGY RESOURCES	COMMENTS
Bureau of Reclamation *(Nations' second largest producer of hydroelectric power producing 42 billion kWh per year at 58 plants; Agency supports development, management, and restoration of water and related natural resources in 17 Western states).*	Accepts receipts from Bonneville Power Administration for the sale of electricity - $23 million. Accepts receipts from the sale of power and other utilities = $219 million. Accepts receipts from the construction, rehabilitation, operation, and maintenance of the Western Area Power Administration (offsetting collections) - $645 million.	
U.S. Geological Survey *(Provides impartial scientific information and comprehensive analyses of energy for use by land and resource managers. Collects, monitors, analyzes and provides scientific understanding about natural resource conditions, issues, and problems).*	The agency's onshore and offshore geologic research and investigations produce geologic information for use in the management of public lands and in national policy determinations; geological, geophysical, and geochemical maps and analyses to address environmental**,** energy and mineral resource, and hazards concerns; and hazards**,** energy and mineral resource, and environmental assessments; among related activities. FY 2003 request includes $500,000 to update the 1979 National Geothermal Resources Assessment, focusing initially on the Great Basin Area. Conducts water resources investigations, producing data, analyses, assessments, and methodologies to support Federal and non-Federal entity decisions on water planning, management, and quality. Agency is reimbursed for its activities by non-Federal entities.	

Federal Energy Regulatory Commission (FERC)

PROGRAM OFFICE OR ACTIVITY	ENERGY RESOURCES	COMMENTS
Ratemaking Authority	FERC approves rates for all Federal Power Marketing Administrations except for the Tennessee Valley Authority.	
Certification	FERC Certifies three special classes of power generators including cogeneration facilities. FERC plans to strengthen by continuing the State-Federal Partnership Regional Transmission Organization to streamline hydropower-licensing process through an interagency task force.	
Regulatory Authority	FERC regulates over 1,660 hydroelectric projects (includes Federal and non-Federal entities).	