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**Testimony  
Subcommittee on Energy and Mineral Resources  
Committee on Resources  
United States House of Representatives**

**“The Role of the Federal Government and Federal  
Lands in Fueling Renewable and Alternative Energy”**

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Mr. Chairman and members of the Committee, thank you for this opportunity to discuss the role of the U.S. Forest Service and National Forest System Lands in fueling renewable and alternative energy.

I am Marcia Patton-Mallory, Forest Service Biomass and Bio-energy Coordinator.

In February 2005, a Government Accountability Office Report on woody biomass utilization recommended that the Chief of the Forest Service appoint an official or organization responsible for overseeing and coordinating the agency’s woody biomass activities. On October 1, 2005 my position was established within the Chief’s Office. The new position expands upon the efforts of a Washington Office cross-deputy Woody Biomass Utilization Team, field biomass coordinators, and other cross-deputy efforts already underway.

This afternoon I intend to discuss the agency’s efforts to develop renewable and alternative energy resources (biomass, hydroelectric, geothermal, wind and solar) under the broad terms of the Forest Service multi-use mission in which energy development is encouraged on National Forest System (NFS) lands in a manner consistent with our legal and regulatory responsibilities.

The mission of the Forest Service is to “sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations.” This mission stems from the relationship between the American people and their natural resource heritage. This relationship is characterized by the principles of sustaining our natural resources for future generations, producing personal and community well-being, and providing economic wealth for the Nation. This foundation is often referred to as “sustainable resource management.”

The USDA Forest Service works to sustain the health, diversity, and productivity of the Nation’s forests and grasslands by managing the 193 million acres that comprise our national forests and grasslands, by serving as the largest forestry research organization in the world, and by providing private landowners with technical and financial assistance that encourages sustainable forest management.

The Forest Service’s updated 2004 – 2008 National Strategic Plan embodies the agency’s many areas of responsibility by outlining the strategic goals and objectives. The Strategic Plan Goal #4 is “Help meet energy resource needs.” The desired outcome is to utilize opportunities for energy development and the supporting infrastructure on forests and grasslands to help meet the Nation’s energy needs. Unless otherwise restricted, NFS lands are available for energy exploration, development and infrastructure occupancy (for example, well sites, pipelines, and transmission lines). The two objectives under Goal #4 are:

1. Work with other agencies to identify and designate corridors for energy facilities, improve the efficient processing of permit applications, and establish appropriate land tenure (including transferability clauses) in easements and other authorizations to provide for long-term project viability.
2. Stimulate commercial use of small-diameter trees from NFS lands for biomass energy.

The strategic goal of helping meet energy resource needs received a PART review during the President’s FY 2007 budget year and was rated Adequate based to three factors:

- Performance measures are incomplete, particularly relating to compliance with permit conditions and whether violations or outstanding issues are addressed within acceptable timeframes.
- The agency works with its Federal partner, the Bureau of Land Management, through an interagency agreement, but a review indicated actual collaboration is sporadic and varies by location. This may lead to situations where application processing and program administration is delivered inconsistently.
- The agency is on track with the percent of drilling permits processed but is not meeting its target for the percentage of lease applications processed in prescribed timeframes.

The agency is implementing PART recommendations by

- Refining performance measures to include compliance and remediation.
- Improving coordination with the Bureau of Land Management to enhance program efficiency.

- Reducing the backlog of lease applications by implementing authorities provided by the Energy Policy Act of 2005.

Alternative and renewable energy development plays a significant role in the agency's implementation of the Energy Policy Act of 2005 (P.L. 109-58). As you know, that law significantly benefits consumers by increasing energy supplies while protecting the environment and fostering greater competition in the marketplace; and improves the Nation's energy security and reduces our dependence on foreign sources of oil by increasing the use and diversity of renewable energy sources and by reducing energy consumption through greater conservation and energy efficiency.

The energy component of our Strategic Plan focuses on increasing opportunities for development and supply of oil and gas, coal, and geothermal resources from Federal lands, and creating and improving potential for energy from woody biomass. The energy minerals component emphasizes processing the backlog of energy mineral applications, including applications for permits to drill and lease nominations. Hydropower, wind and solar energy will be discussed separately. Importantly, however, the ultimate decision on whether to produce a given energy resource relies on the private sector and market conditions.

We began implementation of the Energy Policy Act in 2005, including joint sessions with agencies of the Department of the Interior (DOI) to meet specific sections of Title II-Renewable Energy, and Title III-Oil and Gas. One of our accomplishments is a completed interagency Memorandum of Understanding (MOU) under section 365 for improving energy permit coordination on Federal lands including assignment of personnel to pilot project offices. We worked closely with the Bureau of Land Management (BLM) to revise the Oil and Gas Onshore Order No. 1 regulation on the approval of oil and gas onshore lease operations. We are currently working with Bureau of Land Management on an MOU for timely processing of pending geothermal lease requests under section 222.

In the landownership management program, we processed 254 (97 percent) special use authorizations within established timeframes for electric transmission lines, oil or gas pipelines, and renewable energy generation facilities. We initiated interagency rule making on expedited trial-type hearings for applicants or other parties contesting 4(e) conditions for hydropower facilities. We began implementing section 368 of the Energy Policy Act to designate energy corridors on Federal lands by preparing for the public scoping meetings for the Western Energy Corridor Programmatic Environmental Impact Statement in 11 Western states.

I will now discuss each renewable energy source separately.

### **Energy from Biomass**

Biomass has surpassed hydropower as the largest domestic source of renewable energy. A recent joint U.S. Forest Service – Department of Energy report, **Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-**

**Ton Annual Supply**, commonly known as the “Billion Ton Report,” projects that there are over 1.3 billion dry tons per year of biomass potential – enough to produce biofuels sufficient to meet more than one-third of the nation’s current demand for transportation fuels by 2030. About one-quarter of that total, roughly 400 million dry tons of biomass could be produced in a sustainable manner from forest lands - including private, state, tribal and federal lands.

A significant portion of biomass from Federal lands could potentially be produced through implementation of the Administration’s Healthy Forests Initiative and the National Fire Plan. The Forest Service and the Department of the Interior last year treated hazardous fuels on more than 2.9 million acres of land, and reduced hazardous fuels on an additional 1.4 million acres through other land management actions. Federal agencies plan to treat 2.9 million more acres in 2006, and accomplish hazardous fuels reduction on an additional 1.6 million acres through landscape restoration activities. An additional 4.6 million acres are planned for 2007, which includes 3.0 million acres of hazardous fuels treatments and 1.6 million acres of landscape restoration. Roughly one-quarter of the acres treated resulted in biomass utilization for forest products, bio-based or bio-energy purposes, but the potential exists for substantial expansion of biomass use. More detailed biomass supply estimates are being developed from hazardous fuels treatments in local areas, for use by businesses and communities who want to invest in biomass utilization and bio-energy infrastructure.

Woody biomass, the focus of the Forest Service Biomass and Bioenergy efforts, is woody materials removed from National Forest System lands as a byproduct of fuels reduction and restoration activities. Woody biomass includes tree stems limbs, tops, needles, leaves and other woody parts. Currently most of this material is underutilized, commercial value is low, markets are small to non-existent and the infrastructure needed to process this material is insufficient or nonexistent in many parts of the country. Frequently materials from forest fuels treatments that are too small for the products stream are also included in available biomass estimates.

The challenge to put this material to productive use requires an integrated strategy involving federal, state, tribal and private forest owners along with communities and other private interests. The public benefits of diverting this material from other disposal options such as open burning, and the positive environmental consequences of a clean and renewable energy source are just beginning to be articulated and valued in the market through renewable energy credits, carbon credits and pollution credits.

Local areas and regions of the country have unique opportunities and challenges related to biomass utilization. Hurricane damage in the south, fuels treatments needs around communities, and insect outbreaks all provide cross-ownership woody biomass utilization challenges.

The Forest Service is also increasing our Research and Development efforts at the Forest Products Laboratory and at our Research Stations to provide renewable energy and

alternatives to fossil fuels from woody biomass. This effort includes improved in-woods operations, transportation and handling, processing and new bio-based products.

The Forest Service's efforts to restore forest health through biomass utilization are also affected by the global timber market. With the reduction in mill capacity and other related infrastructure, it becomes more difficult to access the markets that make restoration work on our Nation's forests and grasslands financially feasible. In addition to reducing wildfire risks to communities and the environment, hazardous fuels treatments can help provide a reliable supply of biomass that may make energy utilization efforts more economic. The FY 2007 President's Budget addresses this need by dedicating \$292 million to hazardous fuels treatment, with \$5 million to foster markets in biomass utilization. Additionally, authorities of President's Healthy Forest Initiative and the Healthy Forests Restoration Act such as Stewardship Contracting allow the Forest Service to work more effectively and efficiently with the local community in treating hazardous fuels, and promote investment in the local timber infrastructure.

In summary, the Forest Service's biomass energy activities are aimed at providing a predictable and sustainable supply, technical assistance and science to support improved utilization, and developing partnerships across woody biomass interests.

### **Hydropower**

Hydropower is one of the most fully developed 'renewable' power sources in the US, contributing about 81% of the nation's renewable electricity according to the National Hydropower Association. Hydropower generation produces about 7% of total US electric generation.

The permitting decision for hydropower projects on NFS and other federal lands is made by the Federal Energy Regulatory Commission (FERC). On NFS lands, there are approximately 190 FERC-licensed projects and 50 FERC-exempted projects. The total capacity of FERC-licensed and FERC-exempted projects on NFS lands is approximately 16,000 Mega-watt (MW), with most projects having a 5 MW or less capacity. Since total hydropower generation in the US is slightly more than 100 Giga-watt (GW), approximately 15% of the nation's electricity from hydropower is generated on NFS lands.

The most significant constraint on hydropower generation expansion on NFS lands is physical; most of the best locations for hydropower generation have already been developed. Currently, the most active area for new projects on NFS lands is Alaska. The most likely source of new hydropower is adding incremental generation at existing sites, or making existing projects more efficient.

When a project is located, in whole or in part, on a National Forest, section 4(e) of the Federal Power Act (FPA) authorizes the Secretary of Agriculture to submit conditions to FERC, for "the protection and utilization of the reservation and its resources," that FERC must include in a project license. When a project is not located on a federal reservation, but affects the reservation or its resources, the Secretary may make recommendations to

FERC under section 10(a) of the Federal Power Act to mitigate impacts or enhance natural resources, that FERC may (or may not) include in a license, under its own authority (to balance power and non-power interests). For USDA, the authority to submit conditions to FERC has been delegated to Regional Foresters.

In addition, Section 7(a) of the Wild and Scenic Rivers Act authorizes the Secretary of Agriculture to determine the acceptability of projects within and upstream, downstream, or on a stream tributary to wild and scenic rivers, and submit appropriate license conditions to FERC to protect river values. This authority has also been delegated to Regional Foresters. Also, for some existing and for all new projects, the Federal Land Policy and Management Act of 1976 authorizes the Secretary of Agriculture to issue, renew, or grant authorizations to occupy, use, or traverse National Forest System lands for the generation, transmission, and distribution of electric power, including hydropower projects.

The Forest Service objective is to encourage hydropower production and ensure that the planning, construction, and operation of hydropower projects protect and effectively utilize NFS lands and resources. Forest Service considers energy potential to be a National Forest System resource in arriving at management decisions concerning proposed hydropower projects. The focus of Forest Service conditions is to minimize negative impacts of project operations and occupancy of NFS lands clearly described or guided by the applicable land management plan and authorities.

### **Geothermal Energy**

Nearly 50 percent of the nation's geothermal energy production comes from Federal lands. There are currently 354 federal geothermal leases, 148 on NFS lands, covering nearly 360,000 acres. At the present time, there are 4 producing leases on NFS lands contributing to a 12 mega-watt plant and a 45 mega-watt power plant that, combined, have resulted in more than \$12 million in royalties, 50 percent of which has been returned to the Treasury.

A joint report prepared by the Department of Energy (DOE) and the Department of the Interior (DOI) describes geothermal resource potential data for federal lands in the 7 states that have geothermal resources. The report is entitled **Opportunities for Near-Term Geothermal Development on Public Lands in the United States**. While no formal geothermal resource assessment analysis has been completed to date addressing NFS lands specifically, the report provides a synopsis of geothermal activity and site specific facts related to this activity for NFS lands by State.

The BLM and the Forest Service coordinate geothermal resource leasing activities on NFS lands. The Forest Service provides the consent to lease and the BLM issues the leases. The Forest Service serves as lead agency for geothermal leasing availability analyses and decisions and conducts analysis on geothermal activities on NFS lands. Also, we develop lease stipulations for NFS lands that are only as restrictive as necessary to protect the resources for which they are applied. The Forest Service and the BLM coordinate the signing and release of decision documents on leasing of NFS lands.

Despite the environmental benefits of geothermal energy, there have been barriers to development of these resources on NFS lands. The study conducted jointly by the DOE and DOI concluded there is a need to streamline environmental reviews. The Energy Policy Act of 2005 addresses this and other issues. It streamlines the permitting process, changes the royalty structure to provide payments to local governments, and mandates that the U.S. Geological Survey conduct detailed geothermal resource mapping. It also provides a production tax credit. These changes have spurred increased interest in developing geothermal resources.

The Forest Service concurrence is pending on 43 lease applications in Oregon, Washington, California. Issues to be addressed include requirements associated with threatened and endangered species and the need to amend land-use plans that do not presently address geothermal development. Under the Energy Policy Act 2005 section 225 MOU, the Forest Service is developing a five-year National Environmental Protection Act schedule to address this backlog of pending lease applications. BLM has been assisting the Forest Service in completing a revision of land use plans for western Washington. Funding under the FY 2005 budget was allocated for the Klamath and Inyo National Forests to complete land-use plan updates and revisions that are necessary for decisions on these pending leases.

### **Wind and Solar Energy**

In 2005, the Forest Service and the Department of Energy's National Renewable Energy Laboratory established a partnership to conduct an assessment of renewable energy resources on National Forest System (NFS) lands in the continental United States, including administrative and physical limitations on access to them. One goal of the resulting report was to identify those National Forest and Grassland units that have the highest potential for private-sector development of wind, concentrating solar power and photovoltaic energy resources.

Using geographic information system (GIS) data, the interagency team developed screening criteria for each of the solar and wind resources to produce maps of the 25 NFS units with the highest potential for development of each energy source. Sites were excluded if they were not accessible to appropriate transmission capacity or a major road. Sites had to be relatively flat and not near urban areas. Inventoried Roadless Areas and other Specially Designated Areas were also excluded. The assessment found that 99 National Forest Units have high potential for power production from solar or wind sources. Twenty NFS units in nine states have high potential for power production from two or more wind or solar sources.

Energy facilities qualify as one of the potential uses of National Forest System lands. The Forest Service processes proposals for solar and wind energy facilities using existing Special Uses regulations and policies. Proposals to use National Forest System Lands are submitted to the District Ranger or Forest Supervisor having jurisdiction over the affected lands. The authorized officer then initiates pre-application actions that involve initial and second-level screening which are followed by a formal application in the event that a proposal meets the screening criteria.

To date, the Forest Service has received no applications to construct a concentrating solar power or photovoltaic project. The processing of recent wind energy proposals on the Green Mountain National Forest in Vermont and on the Huron-Manistee National Forest in Michigan has revealed that policy regarding wind energy needs to be expanded due to the unique factors associated with this renewable energy resource. In response, Joel Holtrop, Deputy Chief for the National Forest System, announced the creation of an ad hoc Wind Energy Guidance Team on February 24, 2006. The team is to further develop policy addressing the unique factors associated with wind energy facilities on National Forest System lands.

The primary goal of the team is to provide local Forest Service officials with the information and tools necessary to efficiently process proposals for wind energy facilities under the Special Uses program. Specific wind energy policy will ensure that local officials can make well-informed decisions and will ensure that adequate and consistent analyses and procedures are implemented to assess and evaluate proposals. The team currently meets weekly to determine any special considerations that should be made when screening wind energy proposals, determining the type and term of authorizations, and calculating the fees associated with the authorization. The team is also considering guidance for potential visual, scenery, recreation, or wildlife impacts and measures to mitigate those impacts.

The recent Bureau of Land Management (BLM) Programmatic Environmental Impact Statement on Wind Energy Development is being used as a resource to allow for interagency consistency in policy.

In conclusion, Mr. Chairman, the Forest Service is firmly committed to the development of renewable and alternative energy sources. National Forest System lands are already one of the larger sources of hydropower and geothermal energy. The agency will play a leading role in increasing the utilization of woody biomass as a renewable energy source. We are confident we can accomplish all of this within the statutory and regulatory framework under which the Forest Service manages 193 million acres of forests and grasslands.

I would be glad to answer any questions you may have.