**INFORMATIONAL MEMORANDUM FOR THOMAS J. VILSACK, SECRETARY**

**FROM:** Harris D. Sherman

Under Secretary, NRE

**SUBJECT:** *Expanding the Federal Government’s Role in Promoting Forest Biomass Thermal and Electric Energy Production*

**ISSUE:**

Forest biomass thermal and electric generation remains an underutilized component of the nation’s all of the above energy strategy that can help establish our Nation's energy independence, mitigate the effects of climate change, and build a foundation for sustained economic growth in rural communities. Forest biomass energy, derived from hazardous fuels reduction treatments, can substantially reduce the costs and impacts of severe wildfire, generate and sustain rural energy and natural resource-based jobs, and complement intermittent renewable energy such as solar and wind with reliable, baseload generation. When compared with greenhouse gas and particulate emissions from increasingly frequent and severe wildfire alternatives, forest biomass energy can help reduce emissions, while enhancing other natural resource values such as clean drinking water and wildlife habitat. Small projects (<10 MW) can connect to the distribution system and lessen the need for transmission enhancements. Forest biomass energy is part of an integrated wood products industry that has the potential to enhance sustainability through a variety of sectors including green building and nanotechnology. The Departments of Agriculture, Interior, Energy, Defense, Housing and Urban Development along with the General Services Administration and the Environmental Protection Agency all have capacity to advance forest-based renewable energy consistent with established policy such as Executive Order 13423: *Strengthening Federal Environmental, Energy, and Transportation Management*; Executive Order 13514: *Federal Leadership in Environmental, Energy and Economic Performance*; Executive Order 13624: *Accelerating Investment in Industrial Energy Efficiency (combined heat and power)*; Presidential Memorandum -- *Driving Innovation and Creating Jobs in Rural America through Biobased and Sustainable Product Procurement*; and Executive Order 13575: *Establishment of the White House Rural Council*.

**DISCUSSION:**

More frequent, larger and more intense wildfires have prompted the need for a new management paradigm for our nation’s forests focused on advancing restoration and collaboration. The western wildfire season is 78 days longer now than twenty years ago. Ten states have experienced record-breaking fires over the past ten years. Larger and more severe wildfires have resulted in unprecedented costs borne by both the public and private sectors for firefighting and suppression as well as the rehabilitation and replacement of lost and damaged infrastructure and property.

The many benefits provided by our nation’s forests such as clean air and drinking water, wildlife habitat, forest products, and recreation remain in jeopardy from the threats of wildfire, insects, disease and invasive species, and the compounding implications of a changing climate. Preventing the continued deterioration of our nation’s forests from a strategic asset into a long term liability will require additional commitments.

Lumber, paper, and energy markets are essential to cost effective forest management. The forest energy market can use small diameter, structurally deficient trees that have no other market use and typically comprise the hazardous fuel buildup in our nation’s forests. Approximately 45 million acres across the Western United States are in need of some form of mechanical treatment to improve forest health and resiliency. This estimate includes both public and private lands that are susceptible to active management. It excludes existing reserves such as wilderness, parks and roadless areas. These lands have the capacity to generate approximately 3,700 MW per year. 15 million acres of these lands are owned and managed by the U.S. Forest Service, of which current budgets allow for the treatment of about 211,000 acres annually. Significantly increasing the pace and scale of restoration across all landownerships is a priority for the Forest Service to ensure that our forests continue to provide the many benefits the American people have come to expect of them.

While policy direction will continue to be set at local and state levels, significant opportunities also exist to expand and strengthen the Federal Government’s role in promoting forest biomass thermal and electric energy production consistent with established policies.

**RECOMMENDATIONS:**

1. Target and support facility conversions to forest based thermal and combined heat and power at the Departments of Defense, Energy, Commerce and Agriculture and the General Services Administration.

*Significance*: Federal facilities and military installations have substantial thermal and electric loads, and often require system redundancy to provide energy security and continued service amid potential outages. Conversion of these facilities to forest based thermal or combined heat and power can demonstrate technologies, anchor regional demand for wood energy manufacturing such as chips and pellets, and offer numerous co-benefits, including reducing the impacts of wildfire on military training and readiness.

*Recommended Action*:

* Building from the facilities Forest Service has already converted and existing facilities owned by the Department of Energy, the Coast Guard and GSA, assess aging facilities and new construction for potential inclusion of woody biomass thermal and CHP systems and assign appropriate agency targets for cost-effective applications.

1. Expand woody biomass to energy training, research, development, and demonstrations at the Department of Energy and at colleges and universities

*Significance*: While woody biomass utilization for thermal and electric applications is a proven technology, however few engineers, architects, and system operators are familiar with these technologies, therefore training is critical to further the expanded use of wood energy. In addition, more research into pyrolysis technologies that generate electricity and create liquid fuels and gasification technologies for electric generation could improve efficiency, costs, and other factors throughout the supply chain for the use of wood-based generation. Additional research and applications at colleges and universities can demonstrate technologies, anchor regional forest biomass product demand, and provide education opportunities.

*Recommended Actions*:

* Explore opportunities for the Department of Energy programs and research laboratories to target support for wood pyrolysis and gasification technologies and demonstrations.
* Establish training/education initiatives with multiple universities and technical colleges to train the next generation of engineers, architects and technicians to design, construct and maintain forest biomass thermal and combined heat and power technologies.
* Establish initiatives with multiple universities and colleges to demonstrate forest biomass thermal and combined heat and power technologies.

1. Strengthen woody biomass supply from fire-prone federal lands owned and managed by the Departments of Interior and Agriculture

*Significance:* Forest restoration costs facing the USDA Forest Service and Interior Bureaus such as the Bureau of Land Management, Fish and Wildlife Service and National Park Service could be reduced by expanded markets for biomass energy. Ultimately, restoration treatments must be performed on an all-lands basis to be effective.

*Recommended Actions*:

* Support reauthorization of stewardship contracting with authority to issue contracts over 15-20 year time horizons (as opposed to current 10-year limitations) to enable the long term fuel supply commitments needed to finance forest biomass energy facilities.
* Conduct large-scale NEPA analysis to support appropriate hazardous fuels treatments on an all-lands basis. Explore the use of Service First delegations of authority to support this work as appropriate.

1. Establish clarity on air quality benefits of forest biomass energy over reasonably foreseeable alternatives. Support expanded pilot programs between USDA and EPA aimed at addressing air quality nonattainment through residential stove swap-outs and continued installation of advanced wood combustion systems at appropriate scales.

*Significance*: Air quality regulations could better recognize the benefits to air quality (reduced greenhouse gas and particulate matter emissions) of controlled combustion for energy over severe wildfire scenarios or the conventional practice of piling and burning materials after mechanical treatments. Formal recognition of these benefits, particularly from small-scale combined heat and power facilities, will significantly alleviate perceived risks from private sector investors that finance wood energy projects. Other opportunities to replace inefficient wood-burning residential stoves with pellet and EPA-certified wood stoves can address localized air quality smoke and soot challenges.

*Recommended Actions*:

* In consultation with the Council on Environmental Quality and EPA, establish a task force to provide recommendations on measures to ensure that forest biomass is treated appropriately under carbon accounting rules and particulate emissions requirements under Clean Air Act regulations.
* Expand the successful Seeley Lake Montana residential stove swap-out program to other regions on the verge of air quality nonattainment.

1. Explore appropriate policies that foster forest biomass energy in federal residential investments through the Department of Housing and Urban Development and USDA Rural Development’s Housing and Community Facilities program

*Significance*: There are substantial opportunities for forest biomass thermal and electric to be incorporated in new federally financed residential developments located in areas with high fire risks or areas with costly fuel-oil and propane dependencies.

*Recommended Action*:

* Consistent with established policies focused on energy efficiency, explore policies such as preferred scoring for locally sourced energy and other mechanisms that can support forest energy utilization in residential and community facility programs.

1. Convene a summit of stakeholders comprising investor-owned, rural, and municipal utilities, conservation organizations, the wood products industry, biomass manufacturers and investors, state energy officials, and federal partners to highlight successes, address challenges, and set priorities for expanding the use of forest-based thermal and electric energy.

*Significance*: While the Federal Government role in forest biomass energy can be expanded, achieving scale will require support and investment from a range of stakeholders spanning the environment, utility, wood products and energy policy arenas.

*Recommended Action*:

* In consultation with the White House Rural Council, convene stakeholders in the Fall of 2013.