Testimony of

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Energy Independence and Global Warming

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Chairman Markey, Ranking Member Sensenbrenner, Representative Herseth Sandlin, and members of the Select Committee, thank you for the opportunity to give testimony on the important topic of forests and climate change. My name is Thomas A. Troxel, and I am here today representing the Black Hills Forest Resource Association, a trade association representing forest products companies in the Black Hills region of South Dakota and Wyoming.

Background

I'm testifying today, not as an expert on global climate change, but as a forester with 35 years of experience in the Intermountain West. I currently work primarily with the Black Hills National Forest, which lies in western South Dakota and northeastern Wyoming, and with the other national forests in Wyoming and Colorado, which comprise the Forest Service's Rocky Mountain Region. These forests are comprised primarily of ponderosa pine, lodgepole pine, Engelmann spruce, true firs, and aspen, each of which occupy specific habitats and require individual management strategies.

How will changes in temperatures, precipitation and weather patterns affect forestry?

Forests have evolved over millions of years in association with many past changes in climate. For instance, the current forests of the Black Hills are a remnant of a boreal forest that covered all of South Dakota only 10,000 years ago. Looking ahead, climate change will have varying effects on forestry depending on the specific change and the particular species of trees. Most scientists now predict a warmer, drier climate. To the extent that climate change will cause a warmer, drier climate, it will likely stress forests, making them more vulnerable to insect and disease outbreaks. Similarly, in a warmer, drier climate, wildfires will likely

become more frequent and intense, cost more to suppress, and have greater impacts on air and water quality, wildlife habitat and infrastructure.

To understand how this would affect forests in the future, consider the effects of below average precipitation for most of the last 10 years over much of the western United States. Since 2000, forest fires have burned 184,000 acres of the Black Hills NF, including the Jasper Fire, the largest fire in the recorded history of South Dakota. In August 2000, with hot, dry weather conditions, and record low vegetation moisture, the Jasper Fire burned 83,500 acres (including 50,000 acres in just a few hours on August 26th) and cost $11.5 million to suppress. In 2002, the Hayman Fire burned 138,000 acres southwest of Denver, Colorado, making it the largest fire in the recorded history of Colorado, and cost $39 million to suppress. Also in 2002, the Missionary Ridge fire burned 70,000 acres in southwest Colorado, at a cost of $90 million to suppress and another $9 million in rehabilitation costs.

Since the late 1990s, a mountain pine beetle epidemic has affected over 200,000 acres in the Black Hills, and is still killing over 100,000 new trees each year. During the same period, a massive mountain pine beetle epidemic has exploded in Colorado and Wyoming, killing nearly 2 million acres of forests. Forest entomologists predict that by the time the beetle has finished, it will have killed 80-90% of the mature lodgepole trees in Colorado. Mature trees account for 90% of the lodgepoles. While beetle infestations are part of the natural order of these forest, the current epidemic has exceeded anyone's prediction.

In addition to the effects on the forests themselves, fires and mountain pine beetle epidemics will have significant effects on water quality, water quantity, wildlife populations and habitat, recreation, critical infrastructure, and the safety of people and communities.

How will threats by pests change or grow due to climate change?

Climate is one of the most important factors affecting mountain pine beetle populations. Typically, higher elevation and northern latitude forests experience extreme cold periods where air temperatures hover at minus 30-40°F for several or more weeks in winter. Under such temperatures over-wintering beetles or

larvae experience significant mortality. Similarly, cool moist summers can inhibit beetle activity and larval development and increase the effects of fungal pathogens. Under warmer and drier climatic conditions, beetle populations respond with less winter mortality and faster, more efficient reproductive cycles.

Under the "average" climatic conditions of the past century, mountain pine beetles exist as an endemic population within pine forests, colonizing and killing trees that are unable or incapable of defending themselves due to a variety of physiological, genetic or environmental factors. Trees that are not growing vigorously due to old age, competition, poor growing conditions, drought, fire or other damage are the trees most likely to be attacked by bark beetles.

The availability of suitable host trees is an equally important factor that influences mountain pine beetle populations. Susceptibility to mountain pine beetles is closely related to tree vigor, which is related to stand density. As stand density increases, the amount of competition between individual trees within the stand for water, sunlight and nutrients, will also increase. A warmer, drier climate will cause additional stress to forests, making them even more vulnerable to insect and disease outbreaks.

A combination of mild winters, early springs and longer summers present perfect conditions for mountain pine beetle survival and reproduction. When combined with a landscape dominated by stands of mature host trees, which are stressed from overstocking and drought, the conditions for an epidemic are present. If the climatic conditions that favor bark beetles persist, this epidemic will last as long as there are host trees available to eat. When epidemic populations develop, trees that originally exhibited resistance to pest attack can succumb to the sheer numbers of beetles. That is exactly the scenario now playing out in forests in the Black Hills, Wyoming, Colorado, and across the West.

How can forestry help produce low carbon energy and sequester carbon?

Forestry can help produce low carbon energy and sequester carbon through 1) Management Strategies for Sequestration, 2) Reducing Fires and Insect Epidemics, 3) Substitution of Biomass for Fossil Fuels, and 4) Utilization of Wood Products.

1) Management Strategies for Sequestration - Forests play a crucial role when considering ways to address the increase in atmospheric carbon dioxide levels and potential climate change. Forests are better at storing carbon than any other land cover. It is estimated that U.S. forests sequester about 200 million metric tons of carbon per year, which offsets about 10% of the industrial emissions of greenhouse gases.

Although there is debate on this issue, it seems clear from modeling studies that, in the long run, properly managed forests that incorporate a sequence of harvests result in more carbon sequestered than a forest left unmanaged. This is because rapidly growing young forests are more efficient in carbon sequestration. Old forests store more carbon, but as they age and are taken over by insects and disease the net uptake of carbon can diminish to zero as carbon lost in respiration and decomposition becomes similar to the rates of carbon uptake. Harvesting results in an immediate decline in carbon storage, but the significance of this depends on the fate of carbon in the various harvested products, and the environmental and carbon costs of using alternative products, such as steel, concrete, or aluminum, whose manufacture is energy intensive and produces substantial emissions.

There is no “best” approach to managing forests for carbon sequestration as the type of management used depends on ownership objectives, tree species, and site productivity. Any forest carbon strategy must seek to maintain forest ecosystems with a diversity of age classes at the landscape level. Emphasis must be placed on maintaining forest health by thinning overstocked stands to reduce mortality from drought, insects, disease, and wildfire. When catastrophes do occur, dead trees should be promptly salvaged, where allowed, and the area regenerated to ensure rapid restoration of forest cover to allow young trees to absorb carbon dioxide from the atmosphere through photosynthesis.

2) Reducing Fires and Insect Epidemics – Forests can be either a sink for CO2 or a source of CO2. Reducing the number and severity of wildfires may be the single most important short-term action we can take to lower green house gas emissions. One wildfire, the July 2007 Angora Fire, which burned 3,100 acres in South Lake Tahoe, released an estimated 141,000 tonnes of carbon dioxide and other green house

gases in the atmosphere, and the decay of trees killed by the fire could bring total emissions to 518,000 tonnes. This is equivalent to the green house gas emissions generated annually by 105,500 cars. Active forest management to improve forest health and reduce hazardous fuels can dramatically reduce CO2 emissions, while simultaneously enhancing wildlife habitat, recreational and scenic values, reducing the threat of wildfires to communities and critical infrastructure, and contributing to the health of rural communities by providing family-wage jobs.

On the national forests alone, between 60 and 80 million acres of forestland is classified as densely stocked and at risk for catastrophic wildfire. As a result, wildfire is burning large amounts of forests across the nation. In recent years fires have burned about eight million acres each year, and management predictions for the next decade indicate that fires may well burn in excess of ten million acres annually.

The annual growth the Black Hills NF, and the entire National Forest System, is significantly higher than the annual harvest (see Attachment 1). On the Black Hills NF, the volume of standing sawtimber has increased from 1.5 billon board feet in 1897 to more than 5 billion board feet today, while nearly 6 billion board feet of timber was harvested during that same period. Consequently the overstocking and mountain pine beetle risk are compounded each year by new growth, ultimately leading to even higher risks of mountain pine beetles and fires. Further, the lack of age class diversity puts entire landscapes at risk. In Colorado and Wyoming, almost the entire lodgepole pine landscape is mature (see Attachment 2), the result of settlement, logging, and fires 100 years ago.

A healthy forest products industry is critical to reducing risks of wildfires and mountain pine beetles. The single most important factor for the viability of existing industry infrastructure is a consistent, predictable supply of timber sales from the national forests. Losing infrastructure will harm all landowners and make the task of managing the national forests extremely difficult. Millowners need consistency and predictability in the Forest Service's long-term management programs. Similarly, the Forest Service faces the challenge of planning their programs each year without certainty about Congressional funding levels.

As a step toward addressing this issue, I applaud the overwhelming passage of the FLAME Act by the House of Representatives, and hope the Senate will follow suit soon.

3) Substitution of Biomass for Fossil Fuels - Emissions of green house gases can be reduced through the substitution of biomass for fossil fuels to produce heat, electricity, and transportation fuels. Currently, one of the forest products companies in the Black Hills is seriously exploring a partnership to construct and operate a $50 million, 19 MW electrical co-generation facility adjacent to their existing sawmill. The benefits of this facility include:

a) Increasing our nation's supply of renewable energy, thus decreasing our dependency on foreign oil.
b) Increased utilization of forest biomass from forest management projects on the Black Hills NF and private timberlands, including mill residues, slash piles, and small diameter thinnings. About 5,000 large slash piles are created each year, and most of those are burned during the winter months, generating huge volumes of smoke and carbon, and wasting a resource.
c) Creation of 40 to 50 additional jobs for families in local communities.

One of the important considerations is the RES (Renewable Electricity Standard) definition of Biomass. The RFS (Renewable Fuels Standard) definition inexplicably excluded nearly all federal fiber from counting toward renewable biofuels. This restrictive definition serves as a disincentive to restore forest health in many areas and hampers efforts to reach renewable fuels mandates. Unfortunately, HR 2454, the American Climate and Energy Security Act just approved by the House Energy and Commerce Committee is on the verge of repeating this mistake by disqualifying any fiber from Federal lands if it comes from a "mature" forest stand. This provision would have the effect of prohibiting much of the fiber from the national forests from being counted as renewable biomass. Considering the unhealthy state of much of the Western forests, and the pressing need to develop additional capacity of renewable energy, this would be a mistake of historic proportions.

Forest biomass from federal lands must be eligible and all sustainably managed forests, public or private, should be equally eligible to supply biomass. More specifically, slash and other biomass from national forest timber sales that conform to the applicable laws governing the national forests, and the applicable Land and Resource Management Plan, should qualify as renewable biomass under the RES, and the RFS.

4) Utilization of Wood Products - Forests have added value in providing a renewable source of wood products upon which our standard of living depends. Use of wood should be enhanced because life cycle assessments show that using wood for construction and housing uses far less energy and has a much lower "carbon footprint" than structures built with steel, plastic, or aluminum. These alternatives require more energy to produce than an equivalent amount of wood product, and they are not renewable. America's forest businesses are leading the way to embracing environmental standards in business. We grow and harvest timber to manufacture wood and paper products used by every American, and are an essential part of our nation's economy.

Conclusion

Sustainable management of forests can, to a substantial degree, mitigate global climate change. Forests are unique in that no other means of sequestering or offsetting carbon has the added benefits of providing clean water, biodiversity, clean air, wildlife habitat, aesthetics, and wood products. Federal policies that invite and encourage a growing forest business sector and sustainable use of our nation's forests are the right policy for the future. Finally, I am honored to be asked me to testify today, and I would be very pleased to work with Chairman Markey, Representative Herseth Sandlin, and the Committee to explore solutions to the issues discussed here today.

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Thomas A. Troxel
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Tom Troxel was born and grew up in Virginia. He received a Bachelor of Science in Forestry from the University of Montana in 1973, and worked for the U.S. Forest Service in Idaho, Montana and California from 1973 to 1989 with responsibilities in reforestation, silviculture, timber sales, and fire management.

Since 1989, Tom has been the Director of the Rocky Mountain Division of the Intermountain Forest Association based in Rapid City, SD. In this capacity, Tom represents forest products companies in Colorado, South Dakota and Wyoming, primarily on issues related to national forest timber programs, including forest planning, project analyses, timber sale contracts, and legislative affairs.

Tom currently serves as the Director of the Black Hills Forest Resource Association, the Executive Director of the Colorado Timber Industry Association, and the Executive Secretary of the Black Hills Regional Multiple Use Coalition. He is a member of the Board of Directors for the Rapid City Chamber of Commerce and of the Black Hills National Forest Advisory Board. He is also a member of the Society of American Foresters, and was previously Chair of the Libby, MT Chapter of the Society of American Foresters and Chair of the Dakotas Society of American Foresters.

Amount and Source of Federal Grants or Contracts in FYs 2007, 2008, and 2009

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Federal Grants or Contracts received by Thomas A. Troxel in FYs 2007, 2008, 2009

None

Federal Grants or Contracts received by BHFRA in FYs 2007, 2008, 2009

None

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