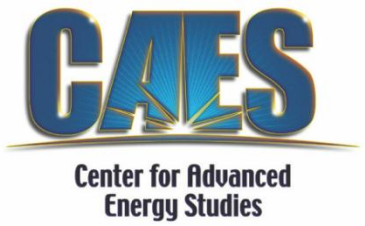
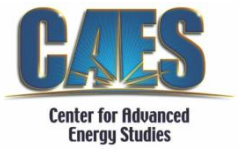


The Energy Policy Institute

IDENTIFYING BARRIERS AND POTENTIAL SOLUTIONS TO FACILITATE WOODY BIOMASS TO ENERGY PROJECTS IN IDAHO: ROUNDTABLE REPORT

April 2012



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IDENTIFYING BARRIERS AND POTENTIAL SOLUTIONS TO FACILITATE WOODY BIOMASS TO ENERGY PROJECTS IN IDAHO: ROUNDTABLE REPORT

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APRIL 2012

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* From *Wood Bioenergy: Homegrown Baseload Energy for Idaho.* Forestry Task Force report for the Idaho Strategic Energy Alliance (ISEA). See http://www.energy.idaho.gov/energyalliance/d/forest_packet.pdf

† The Forestry Task Force is one of 14 task forces working under the umbrella of the Idaho Strategic Energy Alliance (ISEA). Information about the alliance and access to its task force reports can be found on the ISEA website at http://www.energy.idaho.gov/energyalliance/

Acknowledgements

The Center for Advanced Energy Studies' Energy Policy Institute would like to offer our sincerest thanks to the attendees who contributed to the discussion by participating in the roundtable, and to William "Buck" West, who facilitated the roundtable.

Policy Roundtable Participants

Name	**Organization**
Reid Ahlf	Idaho Forest Group
Darin Ball	Potlatch Corporation
Mark Boyle	Idaho Department of Environmental Quality
Angela Farr	United States Forest Service
Richard "Tiny" Furman	Idaho Department of Lands
Melinda Hamilton	Idaho National Laboratory
Karen Humes	University of Idaho
Tammi Laninga	University of Idaho
Jay O'Laughlin	University of Idaho
Tom Richards	Northwest Management
Chris Schnepf	University of Idaho
Mike Sloan	City of Bonners Ferry
Michele Vachon	University of Idaho

Policy Roundtable Overview

In August 2011, the Center for Advanced Energy Studies' (CAES) Energy Policy Institute (EPI) conducted a policy roundtable to examine forest residues and the potential for utilizing biomass for energy production in northern Idaho. CAES convened a diverse set of stakeholders for the roundtable, each with a different perspective surrounding the utility of using woody biomass for fuel. This roundtable was unique because the attendees were asked to participate as knowledgeable individuals, rather than speak on behalf of their respective agencies, organizations, and companies. This ensured an open exchange, resulting in a more candid flow of information. The objective of the meeting was for participants to discuss the benefits, costs, challenges, and possible path forward for utilizing biomass for energy production. Ultimately, participants were asked to identify consensus recommendations to help promote further discourse surrounding this method to generate energy.

Prior to the roundtable, CAES' affiliates developed a basic briefing document, which is attached at the conclusion of this overview. The document addresses the environmental and economic benefits of Wood-to-Energy, and discusses how biomass is currently being utilized at state, regional, and national levels. The Appendices of the document showcase excerpts from the Idaho Strategic Energy Alliance's Forestry Biomass report, as well as the Executive Summary from the 25x25 Alliance's National Wood-to-Energy Roadmap.

Because of their affiliations as either a regulator or regulated utility, representatives from the Department of Environmental Quality did not endorse or reject any of the recommendations.

Although opinions on the utility of woody biomass projects were wide-ranging, the group identified the barriers and consensus recommendations. Please note that these recommendations cover all potential actors and are not an agenda for EPI. The consensus recommendations were:

Barrier 1: There is no recognized and accepted economic, ecological or human health market value for the secondary benefits (uncompensated or cost avoidance benefits).

Recommendations:

1. Education to help develop common ground and consent.
    a. Request Idaho Forest Restoration Partnership (IRFP) and/or Idaho Forest Products Commission (IFPC) seek funding to develop an education and outreach process for the Idaho public.
        i. Include non-researchers to help develop the content and process.
        ii. Leverage existing funding, opportunities and materials.
        iii. Use, or coordinate closely with, the existing Idaho forest collaborations and other such organizations for implementation of the materials and process.

b. Request the IFRP convene a commission or task force to shift or reframe the discussion into ecologically responsible/sustainable Forest Biomass utilization.
    i. Include environmental groups in the discussion.
c. Convene a research steering committee to recommend a research agenda based on data gaps.
    i. Include non-researchers in this steering committee.

2. Solid research and data.
    a. Request Center for Advanced Energy Studies (CAES) seek funding and direct research to collect and summarize research on accepted economic, ecological or human health market value for the secondary benefits (uncompensated or cost avoidance benefits).
    b. Recommend the Idaho Legislature provide funding for collection and summarization of research on accepted economic, ecological or human health market value for the secondary benefits (uncompensated or cost avoidance benefits).
3. State and National policy
    a. Recommend the Western Governors Association (WGA) pass a policy resolution on Woody Biomass that is beneficial to the western states. [*UPDATE: This was accomplished in January 2012. Resolution is available at http://www.westgov.org/component/joomdoc/doc_download/1517-11-2].*

Barrier 2: Low societal attitude/desire/drive to increase the use and value of forest biomass.

Recommendations:

1. Public education.
    a. Recommend taping and distributing the presentation by Mark Knabe, Forest Products Laboratory, U.S. Dept. of Agriculture, Forest Service, Madison WI.
    b. Recommend the IFRP develop a clearing house on existing information and programs.
        i. Washington State University (WSU) may assist the IFRP or possibly provide the clearing house in place of the IFRP.
        ii. Include information on the Fuels-to-Schools program and Forest Service experiences in Montana.
    c. Recommend the WGA help sponsor an Idaho conference on increasing the attitude/desire/drive to increase the use and value of Forest Biomass.
        i. Invite counties to attend.
        ii. Similar to the conference the WGA held in Montana a few years ago.
2. Develop a Forest Biomass implementation and demonstration community.

a. Contact Shoshone County (Vince Rinaldi) to document the barriers they are experiencing to implementing a program.
b. Recommend the state of Idaho (legislature or executive branch) assign an individual to work the bio-energy aspect of the US Farm Bill and promote an Idaho Demonstration community.
    i. Consider working with Shoshone County.
c. Recommend the County Economic Development Association (CEDA) place greater emphasis on Woody Biomass demonstration communities and assist counties in grant applications under Rural Energy Enterprise Zones (REEZ).

Barrier 3: The high cost to get Forest Biomass out of the woods.

Recommendations:

1. Mobile technologies that can more easily go into the woods.
    a. No immediate actions were developed for this solution.
2. Densify the biomass product.
    a. No immediate actions were developed for this solution.
3. Improve cost and efficiency of technologies.
    a. No immediate actions were developed for this solution.
4. Incentivize Forest Biomass removal.
    a. Recommend the Idaho Legislature provide a tax credit (e.g. $10 per ton) to remove Forest Biomass from the woods and deliver to an energy producer.
        i. Credit may not be limited to delivery for energy production.
        ii. Will need a clear definition of qualifying Forest Biomass.
    b. Recommend the IFPC expand their scope into Woody Biomass market development.
        i. This would be similar to the wheat and dairy commission activities.

The following is the briefing memo as presented to the participants for review prior to the roundtable in August 2011.

Introduction and Purpose

Biomass refers to the sum total of all organic material in trees, agricultural crops and other living plant material. Woody biomass is any biomass composed of wood. In the context of energy production woody biomass usually refers to sawmill residues resulting from the conversion of logs to lumber, and ***forest biomass*** – a subcategory of woody biomass comprised of a) forest residues or logging slash left in the forest after harvesting operations, e.g., tops and branches; and b) forest thinnings that remove brush and small-diameter trees to improve forest conditions and reduce wildfire risks, producing low-value material less than 5" to 7" diameter not useful for traditional timber products. Wood in municipal landfills and purposely-grown short rotation woody crops also can produce energy.[*]

Sawmill residues are the low-hanging fruit for energy production, but almost all are already utilized for that and other purposes. This background material focuses primarily on forest biomass, as defined above. Using wood as an energy feedstock is a back-to-the-future technology that can help improve a variety of modern problem situations, including wildfire management, energy security, unemployment, and greenhouse gas emissions. Thermal energy from wood combustion can be used to heat buildings, create steam to generate electricity. In addition wood can be converted to liquid transportation fuels. Brief descriptions of these categories of wood bioenergy follow:

- **Thermal Energy –** Humans have used wood to cook food and heat dwellings since they lived in caves. Today about half of the world's wood use is for these survival needs. Since the 1980s the University of Idaho has heated the campus with wood-fired steam boilers, saving Idaho taxpayers upwards of $2 million per year, depending on the cost of natural gas that wood-burning replaces.
- **Electricity Generation –** Steam from wood-fueled boilers can be channeled into electricity-generation turbines. Several wood products manufacturing firms in Idaho do this. These lumber and paper mills also use the thermal energy released from burning wood residues left after logs are sawn into lumber to heat their buildings and dry lumber. This is a combined heat and power application (CHP) sometimes called co-generation. Idaho's only paper mill, in Lewiston, also uses sawmill residues as the raw material for paper products like toilet tissue and milk cartons.

[*] Definitions from *Biomass Energy and Biofuels from Oregon's Forests*. Oregon Forest Resources Institute (2006). http://www.oregonforests.org/media/pdf/Biomass_Full_Report.pdf

- **Liquid Biofuels –** Wood can be converted to biogas that can be used directly in standard internal combustion engines. Simple water-cooled burners can be fitted in the back of truck or on a small trailer towed by a car, with the gas piped into a standard carburetor. In Europe during World War Two, when almost all petroleum products were diverted to the war effort, many cars and trucks were fueled with wood biogas. The obvious drawback is hauling wood and stoking the stove at frequent intervals. Researchers today have developed technologies that convert wood to liquid biofuels, some of them through a biogas intermediate route, but so far none of them have been scaled up to the point where they are commercially viable. That is likely to change in the near future, with aviation fuels a likely candidate for this region.

Wood combustion provides more than four percent of the energy consumed in Idaho.[*] Nationwide the comparable figure is about two percent, and wood bioenergy rivals hydropower as the leading source of renewable energy; projections indicate that wood bioenergy will be playing a larger role in the nation's future energy supply than it does today.[†] With Idaho's abundant forest resources, these questions arise: Where are the opportunities for additional wood bioenergy facilities in Idaho? What barriers or challenges stand in the way of additional wood bioenergy facilities? What policy options could help increase wood bioenergy production in Idaho?

In 2008 the Idaho Strategic Energy Alliance (ISEA) commissioned a Forestry Task Force to address these and related questions. Findings were reported in 2009;[‡] the Executive Summary is provided herein as **Appendix A**. The report was presented to the Idaho Legislature's Interim Committee on Energy, Environment and Technology. The report identified barriers and challenges to utilizing forest biomass as an energy feedstock, and offered six options as policy recommendations, including the perceived pros and cons of each (**Table 1**).

[*] *2007 Idaho Energy Plan*. Energy and Environmental Economics, Inc., for Interim Legislative Committee on Energy, Environment and Technology. http://www.legislature.idaho.gov/sessioninfo/2007/energy_plan_0126.pdf

[†] *Annual Energy Outlook, with Projections*. U.S. Dept. of Energy, Energy Information Administration.

[‡] O'Laughlin, J. (2009) *Wood Bioenergy: Homegrown Baseload Energy for Idaho*. Forestry Task Force report for the Idaho Strategic Energy Alliance (ISEA). http://www.energy.idaho.gov/energyalliance/d/forest_packet.pdf

Table 1. Pros and cons of six wood bioenergy policy option recommendations*

Options	Pros	Cons
1. Create business tax credit	✓ Creates demand for biomass removal ✓ Reduces capital needs ✓ Reduces development risk ✓ Enhances tax base	✓ Potential deployment risk may reduce income tax receipts
2. Create biomass removal incentive	✓ Increases bioenergy feedstock supply ✓ Reduces bioenergy feedstock costs ✓ Redirects slash disposal resulting in fewer open-burning emissions	✓ Potential deployment risk may reduce income tax receipts
3. Expand "Fuels for Schools" program	✓ Creates demand for forest biomass removal ✓ Reduces fossil fuel use ✓ Reduces school district fuel budget	✓ Requires local funding match ✓ Increases state payroll by one FTE (assuming federal funds are discontinued)
4. Increase US Forest Service budget for restoration	✓ Improves natural environment ✓ Reduces wildfire hazards ✓ Increases bioenergy feedstock supply ✓ Redirects slash disposal resulting in fewer open-burning emissions	✓ Requires funding for environmental analysis in addition to on-the-ground project activities
5. Change federal biomass definitions	✓ Incentive for bioenergy investments ✓ Increases bioenergy feedstock supply	✓ Some view biomass removal as a tactic to increase timber harvests
6. Increase community support	✓ Public awareness of issues and benefits could help improve forest health	

None of the recommendations in **Table 1** have been implemented by the institutional entities in the state identified as being responsible for such actions (see **Table 2**). Some actions would require funds from the state treasury, others would require a change in federal land management policies. One purpose of this policy roundtable is to produce a report recommending next steps that have the potential to address these and perhaps other policy-related barriers.

Table 2. Feedback on policy options from the Idaho Strategic Energy Alliance Council

* Source: *Wood Bioenergy: Homegrown Baseload Energy for Idaho*, O'Laughlin (2009) *supra*.

Options	Identified Entity	Agency Response
1. Create business tax credit	Idaho Tax Commission	Would require legislation. A lot of equipment used in energy production already qualifies for the Investment Tax Credit (which is a 3% credit).
2. Create biomass removal incentive	Idaho Dept. of Commerce / OER* (legislative piece) / Idaho Dept. of Lands	
3. Expand "Fuels for Schools" program	Office of Energy Resources (OER)	
4. Increase US Forest Service budget for restoration	OER* with federal delegation (lobby the Forest Service)	
5. Change federal biomass definitions	Office of Energy Resources (OER)	
6. Increase community support	Office of Energy Resources (OER)	The OER has funded several feasibility studies related to forest biomass projects. It is hoped that the final reports will serve as initial starting points for other communities interested in pursuing forest biomass projects. The OER has also taken the lead to coordinate forest biomass efforts among the relevant state agencies.

*OER = Office of Energy Resources

Background and Recent Events

This briefing document is a beginning point for discussion as it provides background about the opportunities, challenges, and policy issues affecting efforts to increase wood bioenergy production in Idaho. To set the discussion in its current context, what follows is a brief review of significant events in Idaho, in the Pacific Northwest region, and nationwide subsequent to the publication of the ISEA Forestry Task Force report on *Wood Bioenergy* in October 2009. Especially noteworthy is that almost all bioenergy discussions occurring in the past year or so take place in the context of carbon emissions issues. All of these events, especially those in Idaho, indicate that the results of this roundtable will be carefully considered by several audiences, including the Idaho Legislature.

Most of the recent discussions of using biomass as an energy feedstock are grounded in the "Billion-Ton Supply" study published in 2005 by the U.S. Dept. of Energy and the U.S. Dept. of Agriculture.[*] Its stated purpose was to determine whether the land resources of the United States are capable of producing a sustainable supply of biomass sufficient to displace 30

[*] Perlack, R.D., et al. (2005) *Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply*. U.S. Dept. of Energy Tech. Report DOE/GO-102005-2135. Oak Ridge National Laboratory, Oak Ridge, TN. http://feedstockreview.ornl.gov/pdf/billion_ton_vision.pdf

percent or more of the country's present petroleum consumption, which would require about a billion tons per year of biomass feedstocks. The report determined that this is possible, with unused agricultural residues furnishing an estimated 998 million tons and forestry 368 million. The "Billion-Ton Supply" report provided the basis for further refinement of forest biomass supply estimates by the Western Governors' Association that are featured in the ISEA Forestry Task Force report. The two federal agencies recently completed an update of the "Billion-Ton Supply" report, and it should be available in the very near future.

Spurred by the "Billion-Ton Supply" report, a number of agriculture and forestry organizations joined forces in a coalition known as the 25x25 Alliance, for the purpose of helping the nation work towards the goal of getting 25 percent of our energy from renewable resources like wind, solar, and biofuels by the year 2025. The coalition put together an action plan in early 2007, which among other things encouraged states to join the effort. Idaho signed on in 2007, and created the Idaho Strategic Energy Alliance to support the national effort. The 25x25 Alliance recently conducted four workshops exploring the following topics vital to the future of biomass energy in America: wood demand and supply, sustainability of forest resources, carbon and climate change, and related policies. The results were published in June 2011; the Executive Summary is provided herein as **Appendix B**. The policy section is particularly relevant for this roundtable. A **Supplemental Reading List** is also provided herein.

Idaho Events

- Perhaps most important for the purpose to this roundtable is the feedback ISEA received from state agencies regarding what they had accomplished regarding the recommendations offered in the ISEA task force reports, which was provided to the task forces in May 2011. The responses to the Forestry Task Force recommendations are provided in **Appendix C**.
- Idaho lumber manufacturing has been adversely affected by the economic recession of 2007 and the prolonged tepid recovery since then.[*] In short, the housing market collapsed and is now fraught with oversupply from "underwater" mortgages, and lumber demand is derived from housing demand. Less lumber manufacturing means fewer woody biomass residuals for making paper, panel products, and energy. There is, of course, little that can be done in Idaho to affect the national economic situation.
- University of Idaho faculty members in the College of Natural Resources have recently initiated research on fast pyrolysis conversion of logging residues to bio-oil and biochar.

[*] See Morgan, T.A., et al. (2011) *Idaho's Forest Products Industry Current Conditions and 2011 Forecast*. Idaho Forest, Wildlife and Range Experiment Station Bulletin No. 97, Univ. of Idaho, Moscow. http://www.cnrhome.uidaho.edu/documents/Sta_Bull_97.pdf?pid=120133&doc=1

- The Idaho Legislature's Interim Committee on Energy, Environment and Technology is currently initiating an effort to update the *Idaho Energy Plan*, and on July 14, 2011, formally asked for assistance from the ISEA and its task forces. [*UPDATE: The plan was approved by the Legislature during its 2012 session].*

Regional Events

- For the purposes of this roundtable, the relevant region is the four-state Pacific Northwest region of Idaho, Montana, Oregon and Washington. Each of these states has a substantial amount of forest resources, many sawmills, and existing wood bioenergy production facilities.
- Idaho is the only state in the region that does not have a renewable portfolio standard (RPS) policy in place. Nationwide, 37 states now have such a policy.[*] Each state RPS is different, but in general an RPS policy requires utilities to use renewable energy or renewable energy credits (RECs) to account for a certain percentage of their retail electricity sales – or a certain amount of generating capacity – according to a specified schedule. Two of the ISEA task force reports (Biogas and Economic Development & Finance) recommended that Idaho adopt an RPS policy.
- The Western Governors' Association has called for a cohesive federal policy on using woody biomass as an energy source in an August 2010 letter to the President Obama's advisor on energy and climate change.[†] The WGA has adopted Policy Resolution 11-02 "Using Forest Biomass to Produce Energy."
- University of Idaho faculty members in the College of Natural Resources will be responsible for the education and outreach component of a regional aviation biofuels project funded by the U.S. Dept. of Agriculture. The project is titled "A New Vista for Green Fuels, Chemicals and Environmentally Preferred Products" and being conducted by a new alliance called the Northwest Advanced Renewables Alliance (NARA). The NARA project team engages two commercial firms and 6 universities in Idaho, Montana, Oregon, and Washington in a 5-year effort to develop aviation biofuels and chemical co-products from Douglas-fir trees.

National Events

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[*] See Database of State Incentives for Renewable Energy (DSIRE) website http://www.dsireusa.org/

[†] Otter, C.L., and Gregoire, C. (2010) Federal energy policy letter to Carol Browner, Climate Change and Energy Advisor to the President, from the Western Governors' Association chair and vice-chair, Denver, CO. http://www.westgov.org/component/joomdoc/doc_download/1298-browner-bioenergy-letter-8-10-2010

- The definition of "biomass" remains problematic at the federal level, despite urging by many, including policy recommendations by the Western Governors' Association Biomass Task Force[*] and the ISEA Forestry Task Force (see **Table 1**) to develop a single definition. For example, some definitions include woody biomass from federal lands, others do not. A Congressional Research Service report has identified 17 definitions promulgated in federal statutes or the tax code since 2004.[†] The plethora of definitions complicates policies and programs for wood bioenergy.
- The Farm Bill of 2008 created the Biomass Crop Assistance Program (BCAP) which, as the name implies, subsidizes dedicated biomass feedstock crops with annual payments. In addition BCAP authorized dollar-for-dollar matching payments for the collection and transportation of biomass. Program funds were authorized for FY 2009 with no ceiling. During FY 2009 more than $300 million was expended on matching payments, almost all for woody biomass. Some of these subsidies caused market distortions by diverting sawmill residues that would have been used for fiberboard panel feedstocks into energy use. BCAP was suspended in February 2010, new implementation rules were issued in November 2010. Congress, however, is unlikely to fund the matching payments part BCAP.
- The U.S. Environmental Protection Agency (EPA) initiated the "tailoring rule" under the Clean Air Act in order to regulate stationery sources of greenhouse gas (GHG) emissions, such as cement plants and coal-fired power plants. Wood-fueled bioenergy facilities were also to be regulated, but in response to a petition from the National Association of Forest Owners (NAFO). The EPA has deferred for three years a decision on whether to regulate "biogenic" GHG emissions while a science panel evaluates carbon emissions accounting alternatives. The issue can be characterized as developing a consensus as to whether biogenic emissions are "carbon neutral." [‡]
- Due to social concerns about the sustainability of wood bioenergy feedstocks and air pollution from wood combustion, several myths about wood bioenergy have been promulgated by a variety of interest groups. For example, some believe that wood bioenergy will put new harvesting pressures on forests in the form of large-scale clear-

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[*] WGA (2006). *Biomass Task Force Report and Supply Addendum*. Clean and Diversified Energy Initiative, Western Governors' Association, Denver, CO. http://www.westgov.org/wga/initiatives/cdeac/biomass.htm

[†] Bracmort, K., and Gorte, R. W. (2011*) Biomass: Comparison of Definitions in Legislation Through the 111th Congress.* Congressional Research Service R40529. http://assets.opencrs.com/rpts/R40529_20110106.pdf

[‡] See O'Laughlin, J. (2010) *Accounting for Greenhouse Gas Emissions from Wood Bioenergy*: A response to the U.S. Environmental Protection Agency's Call for Information, including partial review of the Manomet Center for Conservation Sciences' *Biomass Sustainability and Carbon Policy Study*. Policy Analysis Group Report No. 31, College of Natural Resources, Univ. of Idaho. http://www.cnrhome.uidaho.edu/documents/JayO%27%27L_to-EPA_9-13-2010_PAG_31.pdf?pid=119711&doc=1

cutting. As another example, the Boston Globe carried an article in June 2010 with the headline, "Wood power worse polluter than coal" – perhaps the worst newspaper headline since "Dewey Defeats Truman."

- A science-driven backlash against using corn, palm oil, and other foodstuffs as bioenergy feedstocks because of energy returns and especially indirect land-use change as tropical forests are being converted to biofuel feedstock crops, with comparative increases in GHG emissions.[*] This has led some observers to think of active forest management as land-use change with increases in GHG emissions compared to leaving forests alone. Such arguments fail to consider that timber is harvested primarily for manufacturing of durable solid wood products, which store carbon for a long time. In addition, because of the carbon cycle every unit of biomass used an energy feedstock substitutes for fossil fuel stocks that will never recapture the carbon released from combustion without expensive and yet unproven carbon capture and storage (CCS) technology. In fact, trees have the innate ability to capture and store large amounts of carbon, and do so more efficiently when they are young and fast-growing.[†]

Questions to think about for the roundtable:

- Did the ISEA's Forestry Task Force report identify the most appropriate policy options (see **Table 1**) for developing additional wood bioenergy capability in the state?
- Should some of these policy options be revised or deleted?
- Are there additional policy options that state policy makers should consider? If so, which agency is the appropriate lead agency?

[*] Fargione, J., et al. (2008) Land clearing and the biofuel carbon debt. *Science* 319: 1235-1238; Searchinger, T.D., et al. (2009) Fixing a critical climate accounting error. *Science* 326: 527-528.

[†] See discussion in *Accounting for Greenhouse Gas Emissions from Wood Bioenergy, supra*.

Supplemental Reading List

BERC (2011). Biomass Energy Resource Center website, Montpelier, VT. http://www.biomasscenter.org/

Cook, P.S., and O'Laughlin, J. (2011). *Forest Biomass Resources: Western States Woody Biomass Supply Study*. Woody Biomass Utilization Database website, Western Governors' Association, Denver, CO. http://www.nationalbiomassutilization.org/program/402

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Page-Dumroese, D. (2011). "Is woody residue part of your plan for sustainable forestry?" *Western Forester* 56(1): 12-13. http://www.forestry.org/media/docs/westernforester/2011/jan11.pdf

Pine, J. (2011). "Why biomass? Why now?" *Western Forester* 56(1): 1-5. http://www.forestry.org/media/docs/westernforester/2011/jan11.pdf

Standley, M. (2011). “Biomass harvesting from a contractor’s perspective: Taking a risky proposition to market.” *Western Forester* 56(1): 10-11. http://www.forestry.org/media/docs/westernforester/2011/jan11.pdf

University of Idaho Extension (2011). “Wood Energy” website. http://www.extension.org/wood_energy

University of Montana (2009). “The Plum Creek Conference on Forests and Energy: The Economic and Ecological Implications of Biomass Utilization from Rocky Mountain Forests” website. http://www.cfc.umt.edu/plumcreekconf/

USDA-FS (2011). “Fuels for Schools and Beyond” website. U.S. Dept. of Agriculture, Forest Service. http://www.fuelsforschools.info/

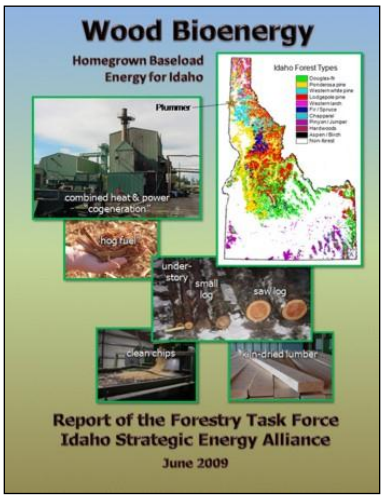
USDI/USDA (2011). "Woody Biomass Utilization" website. U.S. Dept. of the Interior and U.S. Dept. of Agriculture, Forest Service. http://www.forestsandrangelands.gov/Woody_Biomass/index.shtml

Washington DNR (2011). “Forest Biomass Policy” website. Washington Department of Natural Resources, Olympia, WA. http://www.dnr.wa.gov/ResearchScience/Topics/OtherConservationInformation/Pages/em_forest_biomass_policy.aspx

WeFLC (2011). *Introduction to Biomass Utilization: A Primer for Western State and Federal Forestry Officials Interested in Supporting Biomass Industry*. Western Forestry Leadership Coalition, Denver, CO. 11 p. http://www.wflccenter.org/news_pdf/401_pdf.pdf

Appendix A.

Executive Summary – Idaho Strategic Energy Alliance Forestry Task Force Report[*] [†]



Current Situation

Woody biomass provided 1.8% of the energy consumed in the United States in 2007, and 4.7% of the energy consumed in Idaho. Forest-based manufacturing businesses produce and consume most of this energy. These firms use ***proven, cost-effective technology to provide homegrown, reliable baseload energy*** by converting the mill residues from lumber and wood products manufacturing, and "black liquor" residues from pulpmills, into thermal and electrical energy. In Idaho these mill residues are already fully utilized. Wood bioenergy growth in the state is limited by the same thing that constrains growth in Idaho's forest business sector—lack of a reliable long-term supply of timber.

Demand for primary forest products is derived from demand for building materials and paper products that are beyond the control of state policymakers. Idaho's primary forest businesses generate close to $2 billion in sales, about the same as two decades ago (in constant dollars). Almost all Idaho wood and paper products are exported to other states. This industry directly employs 13,500 people in Idaho, and indirectly another 27,000 people. Assuming demand will rebound following the current economic recession, as in the past the size of the industry will be limited by available timber supplies. Two decades ago, Idaho's forest businesses harvested and processed two billion board feet of timber per year. Harvests began to decline in 1990 as

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[*] The Forestry Task Force is one of 14 created by the Idaho Strategic Energy Alliance. Information about the alliance and access to task force reports is online at http://www.energy.idaho.gov/energyalliance/

[†] References that support the claims made herein are provided in the body of the report *Wood Bioenergy: Homegrown Baseload Energy for Idaho,* O'Laughlin (2009) *supra*.

society insisted that National Forest System lands be managed differently. The many reasons for the timber harvest decline do not include the biophysical productivity of Idaho's forests.

Idaho has abundant forest resources covering 40.5% of the state, with 80% of the timber inventory on National Forest System lands administered by the U.S. Forest Service (USFS). Non-federal forests now provide more than 90% of the one billion board feet of timber harvested in the state each year. The scale of the forest products industry has diminished because the supply of USFS timber has declined by 90% from its 1990 level. Each million board feet harvested provides 13 direct jobs in the forest business sector, 26 indirect jobs in other sectors, and mill residues for low-cost energy production.

Reduced timber harvesting in Idaho's national forests has had adverse biophysical consequences. Tree mortality in Idaho's federal forests due to overcrowding and drought is at the highest level recorded since measurements began 57 years ago. In all Idaho forests timber harvests in 2007 removed the equivalent of one-fourth of the annual wood growth increment, whereas mortality equaled one-third of the increment. The accumulation of dead wood has now reached an all-time high, and 94% of it is in the national forests where these hazardous fuels feed large wildfires that not only waste valuable resources, but emit substantial quantities of air pollution and greenhouse gases. Bioenergy and carbon management are two closely-linked reasons why society should reconsider how national forests are managed.

Potential

Projections by the U.S. Department of Energy are that by 2030, biomass feedstocks are expected to provide 7.9% of all energy consumed in the U.S., up from 3.0% in 2007. Between 2007 and 2030 total energy consumption in the U.S. is projected to increase by an annual average of 0.5% per year. During that time bioenergy consumption is expected to increase at an average annual rate of 4.8%/year, with substantial increases in transportation biofuels (averaging 7.6%/year), woody biomass feedstocks for co-firing with coal (12.9%/year), and wood-fueled biopower plants (5.9%/year).

Idaho's forests are among the nation's most productive, and are capable of substantial increases in sustainable wood bioenergy production. This can save money. The University of Idaho has been burning wood in steam boilers to heat most of the buildings on the Moscow campus for 20 years, and is now saving $1.5 million per year compared with natural gas costs. This benefits all taxpayers because it is a direct reduction to the state budget. Woody biomass is also be used to produce electricity, at a cost of 5¢ to 8¢ per kilowatt hour (kWh), which is sensitive to feedstock costs.

More wood bioenergy production in Idaho would help revitalize rural communities as well as restore forest health, fire resiliency and wildlife habitat. An added bonus is that the carbon sequestration capability of Idaho's forests can be enhanced by active management to accomplish the above objectives and thereby mitigate climate change potential.

The benefits from wood bioenergy substantially exceed the value of energy alone because of uncompensated benefits and avoided costs. Wood bioenergy benefits include reduced air pollution, greenhouse gases, and landfill disposal burdens. In addition pre-wildfire forest management activities designed to modify fire behavior provide quantifiable benefits from avoided costs of wildfire suppression and post-wildfire fire site rehabilitation. These ancillary benefits have been estimated at 12.6¢/kWh. Using a carbon price of $10/metric ton, a 10 MW wood biopower plant would produce an estimated $7.6 million/year in environmental benefits while providing 20 jobs at the power plant, and supporting an additional 40 - 50 jobs in feedstock-production operations. Additional benefits from improved energy diversity and security have not been quantified.

Additional wood bioenergy production in Idaho depends on new supplies of and demand for "forest biomass." This subcategory of woody biomass is comprised of forest residues or logging slash left in the forest after harvesting operations, and forest thinnings that remove brush and small-diameter trees to improve forest conditions and reduce wildfire risks. Estimates of potential Idaho forest biomass supply are summarized below, and identified by county in **Table 3**.

Forest residues. State fire hazard regulations require operators to dispose of logging slash, which includes branches and tops in addition to brush and small trees. The most economic disposal method is piling and burning it at the logging site. Alternatively, this material could be chipped on-site and transported to an energy production facility. A Western Governors' Association (WGA) and USFS research team estimated that at a roadside price of $10 per dry ton* for fuel chips ("hog fuel") there would be a sustainable supply of 515,000 dry tons per year of forest residues available from logging on private lands each year, and another 94,000 dry tons from public lands. It takes approximately 10,000 dry tons to produce 1 MW of biopower for a year, indicating a potential of about 60 MW of biopower per year from logging residues.

Forest thinnings. Results produced by the WGA/USFS research team were used to estimate that at $30 per dry ton, 517,000 dry tons of forest thinnings would become available from public lands and 206,000 dry tons from private lands. This material could be used to produce about 70 MW of biopower.

* Green wood has a 50% moisture content, so one dry ton is equivalent to two green tons.

Total forest biomass potential. The potential sustainable supply of forest biomass is a total of 1.3 million dry tons per year, or approximately enough feedstock to support production of about 130 MW of biopower per year. Recall, however, that this feedstock material is at a logging site and would need to be transported to an energy production facility. Like all transportation costs this is distance-dependent. Transportation costs in the region are approximately $25 - $30/dry ton. Assuming an equal mix of logging residues and thinnings, delivered feedstock cost is approximately $45 - $50/dry ton. This is slightly above the high range of what ADAGE* said it would be willing to pay to furnish a 50 MW biopower plant in the region.

Barriers and Challenges to Development

Two interrelated primary challenges exist. One barrier to more production of wood bioenergy is feedstock cost, of which transportation is a large component. The other barrier is that bioenergy facilities need steady, reliable, and lasting supplies of biomass for the expected life of the project, or at least 20 years. Another challenge is a lack of awareness of wood bioenergy potential by citizens and policymakers. For example, wood bioenergy has the potential to displace 10% of the nation's petroleum consumption. Biofuels from wood ran millions of vehicles during World War II and wood biofuels are likely to play some role in our energy future.

* ADAGE is a joint venture of Duke Energy and Areva, an international firm experienced in wood biopower production.

Table 3. Idaho forest biomass supply at roadside price of $30 per dry ton

	Fire hazard thinning		Private land	Logging residue		Unused mill	
County	Public	Private	thinning	Public	Private	residues	TOTAL
Ada	0	0	0	0	6,714	0	6,714
Adams	9,575	0	1,479	1,126	11,609	0	23,790
Bannock	4,020	0	0	0	416	0	4,436
Bear Lake	0	0	841	30	483	0	1,355
Benewah	4,332	10,970	10,276	6,885	57,956	264	90,653
Bingham	0	0	0	0	1,110	0	1,110
Blaine	6,809	1,234	0	0	0	0	8,044
Boise	8,096	1,092	2,034	18,598	14,255	0	44,075
Bonner	101,828	25,119	6,784	0	64,825	170	198,725
Bonneville	5,446	0	0	0	322	0	5,768
Boundary	29,120	2,790	3,219	7,113	20,921	610	63,772
Butte	6,188	0	0	0	0	0	6,188
Camas	2,154	1,410	0	0	0	0	3,564
Canyon	0	0	0	0	223	0	223
Caribou	9,661	0	0	0	198	0	9,859
Cassia	0	0	0	459	56	0	515
Clark	26,414	0	0	0	82	0	26,496
Clearwater	60,010	26,869	0	21,908	74,950	42	183,779
Custer	17,110	0	0	0	0	0	17,110
Elmore	1,448	1,711	0	6,752	4,598	0	14,510
Franklin	666	0	0	0	113	0	779
Fremont	8,140	510	0	0	83	0	8,732
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	64,578	8,538	4,394	3,971	35,331	122	116,935
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	30,178	12,809	5,684	1,849	66,301	3,936	120,757
Latah	9,663	20,842	8,189	5,288	45,621	0	89,603
Lemhi	0	0	0	1,343	131	0	1,474
Lewis	0	988	2,575	0	13,136	0	16,700
Lincoln	0	0	0	0	0	0	0
Madison	2,906	0	0	0	0	0	2,906
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	1,413	0	0	0	0	0	1,413
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	5,752	0	2,359	0	0	0	8,111
Shoshone	74,236	36,101	2,267	3,394	76,278	0	192,276
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0
Valley	7,003	1,029	359	15,480	11,240	488	35,598
Washington	20,245	0	0	0	1,652	0	21,897
Total	516,992	152,012	54,388	94,310	515,094	6,005	1,338,801

Trees capture and store carbon, and modern biomass-burning technology produces almost no air pollution. Forest businesses are an important part of Idaho's economy and with Idaho's abundant forests there are economic/financial development opportunities for many rural communities. For energy conservation and efficiency, homegrown wood products could be featured in green building programs. Communications and outreach on these topics could help raise public awareness of wood bioenergy benefits.

Options for Development

The most efficient use of wood for bioenergy is thermal energy. Forest businesses use the heat for industrial processes. Communities can use wood bioenergy for district heating of buildings and homes. Co-generation or CHP is also an efficient use of wood, but biopower requires wood supplies that are an order of magnitude (i.e., ten times) more than an efficient-sized district heating plant.

The task force feels that attention to both the demand- and supply-side is necessary. To some extent an increase in the forest biomass supply would create its own demand.

However, economics cannot be ignored, and the lowest-cost wood bioenergy is from mill residues. Roundwood harvests that provide timber for high value products such as solid wood and engineered wood products create mill residues for energy feedstocks. Timber prices are currently at the lowest point in two decades, reflecting the global economic recession and reducing demand for lumber and wood products. Tree growth continues to add additional inventory that can be monetized when the timber market rebounds, as it surely will.

The task force recommends five options for the State of Idaho to increase wood bioenergy production: 1) create a business investment tax credit for new and existing wood bioenergy production facilities and equipment; 2) create an incentive for removal of forest biomass for bioenergy purposes; 3) expand the "Fuels for Schools" program; 4) encourage the U.S. Congress to increase the U.S. Forest Service budget for forest restoration activities; 5) support an amendment to broaden the existing definition of renewable forest biomass to include all wood from all forests; and 6) increase community support necessary for forest biomass utilization for energy and other purposes. [Pros and cons for each option are summarized above in **Table 1**.]

***Business incentive options*.** Tax incentives are needed to bring Idaho to parity with neighboring states. Oregon, for example, provides incentives as follows: 35% or 50% investment tax credit for new bioenergy facilities, depending on the type of facility; and 50% on renewable energy equipment, which helps sustain current wood bioenergy producers. In addition, Oregon offers a tax credit of $10/green ton for biomass delivered to bioenergy facilities. If Idaho does not have incentives comparable to neighboring states, some wood will leave Idaho's forests to

make bioenergy and provide jobs elsewhere. These two incentive options call for a concerted effort by the state's executive and legislative branches. In addition, these incentives should be flexible enough to support the 2007 Idaho Energy Plan for cellulosic ethanol production from woody biomass and include other biofuels and bioenergy development opportunities, whether from agricultural or forestry feedstocks.

***Other options*.** Several Idaho communities have converted fossil-fuel burning school building heating systems to wood-burning technology under the "Fuels for Schools" (FFS) program. The cost savings are substantial and benefit all Idaho taxpayers. Continuation and expansion of the FFS program could encourage more Idaho communities to heat public buildings with wood, and help facilitate the conversion. The outlook for continued federal funding for Idaho's FFS coordinator is uncertain but unlikely.

The U.S. Congress should be encouraged to increase the U.S. Forest Service's budget for forest restoration activities in Idaho. For example, $7.7 million would cover thinning costs on 10,000 acres to reduce hazardous fuels and provide as a by-product 40,000 - 50,000 dry tons of chips for energy feedstocks. Unit costs for energy chips on national forests in southern Idaho are $65 - $85/dry ton, not including project design and environmental analysis costs.

Lastly, the Idaho congressional delegation should be encouraged to support an amendment to broaden the existing definition of renewable biomass in federal policies to include all wood from all forests. The existing definition in the Renewable Fuel Standard promulgated in the Energy Independence and Security Act of 2007 (EISA) excludes wood from federal forests and almost all non-federal forests from qualifying to meet the standard for advance biofuels. Current debate over a Renewable Electricity Standard started with this same definition, and currently would exclude wood from "mature" forests from meeting the standard. Almost all national forests in Idaho may be considered mature.

The last two options above reflect the fact that the USFS administers almost three-fourths of the timberlands in the state. The executive branch could undertake these options alone, or join forces with other states to exert influence through the Western Governors' Association.

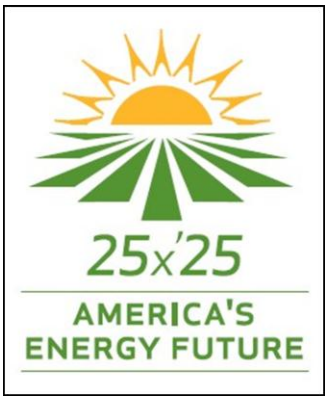
Conclusions

Wood bioenergy opportunities in Idaho are substantial and sustainable. Many Idaho communities are interested in installing wood bioenergy facilities, and for several reasons. Uncompensated social benefits exceed the value of thermal energy and biopower production, and include rural employment, improved forest conditions, avoided costs of wildfire suppression and post-fire rehabilitation, improved air quality, and reduced greenhouse gas emissions. These benefits support government investment in wood bioenergy as a proven,

cost-effective technology for homegrown, reliable baseload energy, and such support will be necessary in the short term to overcome the current feedstock acquisition barriers of high cost and low reliability. The long-term payoff will be increased energy security. Other states have adopted a variety of policies to support wood bioenergy. Idaho could do the same. The Forestry Task Force recommends six options and full consideration of the pros and cons associated with each (**Table 1**, page 4 herein).

All options would increase feedstock supply directly, or by increasing demand. In comparison to the current situation, more use of woody biomass provides a "triple win": 1) improved forest conditions, including wildfire resiliency and wildlife habitat; 2) renewable energy feedstocks, and 3) revitalized rural economies. As a bonus, when biomass is burned to make energy instead of consumed by wildfires, air pollution is reduced and greenhouse gas emissions are more favorable because a like quantity of fossil fuels is displaced and remains in the ground.

Appendix B. Executive Summary – National Wood-to-Energy Roadmap



A National Wood-to-Energy Roadmap

A Guide for Developing Sustainable Woody Biomass Energy Solutions

June 1, 2011

http://www.25x25.org/storage/25x25/documents/WoodtoEnergy/wood_to_energy_roadmap.pdf

In 2010 and 2011, the "25x25" Alliance and the Federal Interagency Woody Biomass Working Group convened a Wood-to-Energy Workgroup, consisting of representatives from landowner groups, professional forestry organizations, environmental organizations, traditional forest industries, emerging renewable energy industries, and academia. Together they explored four topics vital to the future of biomass energy in America: wood demand and supply, sustainability of forest resources, carbon and climate change, and related policies. This paper summarizes the key findings and recommendations for each forum topic. The 25x'25 Alliance gratefully acknowledges the Energy Foundation and the Better World Fund for their funding assistance in helping to make this National Wood-to-Energy Roadmap a reality.

Executive Summary

The use of biomass for energy production has recently captured widespread interest as the United States strives to replace both domestic and foreign fossil fuels with home- grown, renewable energy. Biomass-including woody material from forests-is the only renewable energy source that can potentially provide a combination of heat, electricity and liquid transportation fuels.

Both need and opportunity suggest that forests can play an important role in the nation's energy portfolio. However, the use of wood for energy is currently a point of discussion and debate. Many wholeheartedly promote woody biomass as a feedstock that can help provide energy security, reduce greenhouse gas emissions, create job opportunities, and support rural

development. Others denounce the use of wood for energy as a source of potential harm to our nation's forest resources. They are concerned that forests may be unable to meet the demands for both energy and traditional wood products, while simultaneously supporting wildlife, clean water, clean air, recreation, and our national heritage.

As policy is established to encourage investments in biomass energy, a thoughtful national deliberation on the use of woody biomass is of paramount importance. The discussion should embrace and balance the full range of viewpoints to derive some agreement on the issues and shape a collective vision for the future.

This paper resulted from a collaborative effort to advance the national discussion. It is the product of a thoughtful process-identifying, understanding, and deliberating the issues; developing a vision; and setting a course to achieve the proper use of our forest resources for bioenergy while still meeting the demands for other goods, values, and benefits that Americans desire from their present and future forests.

The "25x25"Alliance and the Federal Interagency Woody Biomass Working Group convened a Wood-to-Energy Workgroup, consisting of representatives from landowner groups, professional forestry organizations, environmental organizations, traditional forest industries, emerging renewable energy industries, and academia. Together they explored four topics vital to the future of biomass energy in America: **wood demand and supply**, **sustainability of forest resources**, **carbon and climate change**, and **related policies**. This paper summarizes the key findings and recommendations for each forum topic.

1. Wood Demand and Supply. Wood demand and supply addresses the role of the nation's forests in the traditional market for forest products and the developing market for energy. What is the potential and expected demand for traditional wood products and for wood as an energy feedstock? How large could the demand become and how likely is that demand to materialize? How much wood can the United States provide sustainably for energy production?

Estimates of both demand and supply change substantially based on assumptions. There are no truly assured estimates of the demand for wood as an energy feedstock in the near or more distant future. Many factors will affect demand, including local supply concerns, competition with other feedstocks, and the use of wood for other products. The most significant drivers are mandates and incentives from federal and state governments and strong, reliable markets-but even existing initiatives may not play out as planned.

There have been hundreds of announcements for new facilities producing bioenergy for heat, electricity, and transportation fuels, but very few have broken ground or been completed.

Supply estimates depend on assumptions regarding technology, policy, and market changes. Fortunately, the United States has abundant forest resources and a largely untapped potential to increase wood growth, yield, and availability (and therefore biomass potential) on existing private and public forestlands.

There is, however, a conceivable sustainable supply limit. Management practices and reasonable policies must be used to ensure that our forests are not jeopardized by surpassing the sustainable limit.

Key findings for wood supply and demand include the following:

- Merchantable wood will continue to be used primarily for conventional forest products for decades.
- Demand for the use of woody biomass for renewable energy will be largely driven by public policy in the short term.
- While there may be the appearance of an over-developing biomass industry that cannot be sustainably supported by the local forest resources, in reality a large majority of these projects will not be built.
- The primary forest resource for biomass energy is mill residues (bark, sawdust, shavings, etc.), with additional potential capacity coming primarily from forest residues and other non-merchantable tree removals.
- Preliminary findings of the forthcoming RPA show that (1) the supply of low-quality material for energy purposes is strongly tied to sawtimber demand; (2) supply will be inelastic in the short term (10 years); and (3) population growth may impact supply from both private and public forestlands.
- The role of public forestlands in producing wood for energy production is expected to be modest.
- Yields per acre could double or quadruple through long-term management techniques.
- Marginal crop and pasture lands offer great potential for the use and expansion of short-rotation woody cropping systems specifically designed for the production of wood for energy.

2. Sustainability. Sustainability speaks to the long-term ability of the nation's forests to provide multiple benefits. Sustained healthy forestlands are needed not only to provide wood for energy and traditional uses, but also to provide wildlife habitat, clean water, clean air, recreation, and to preserve our national heritage.

Fortunately, modern forestry is deeply rooted in conservation, long-term site productivity, and sustainability of the resource. Private forest owners, the forest industry, and state and federal governments strive to produce wood and other services while maintaining the health and productivity of the land and forest ecosystems. Demonstrating the success of these practices is critical to ensuring public acceptance of the wood-to-energy process and the long-term health of the industries involved.

Key findings for sustainability include the following:

- The U.S. Forest Service (2008) draft report on sustainability demonstrates that our forests are sustainable for the production of timber and that declining timber output is not driven by resource restraints.
- Land conversion-not the demand for forest products- is the major threat to our nation's forests.
- Sustainable forest management is an existing, widespread ethic, reinforced by requirements in many states' renewable energy policies.
- Forest landowners and managers appreciate the importance of sustainable management and employ the best science and technology.
- The removal of woody biomass for energy production may improve forest health and help prevent or reduce wildfires.

3. Carbon and Climate Change. Carbon and climate change explores the role of forests in sequestering carbon, which in turn reduces carbon emissions that contribute to climate change. In terms of energy production, questions have been raised about the long-term presumption that energy from woody biomass is carbon neutral, citing concerns that the potential for degrading and clearing natural forests could actually increase atmospheric carbon. Others postulate that forest carbon stocks are always depleted by harvesting but that carbon stock depletion is reversed gradually over a period of years by regrowth of the harvested stands.

The absolute carbon footprint of biomass energy depends on a variety of factors, including the condition of the forest before harvest (stock, disease, fire), types of forests and their growth and regeneration potential, the products made from the wood harvested, amount of material from the forest used for energy, pre-combustion emissions (conversion, processing, transport), efficiency of the energy conversion technologies, type of fossil fuel (grid mix) replaced, management of the forest after harvest, and the ratio of biomass used for energy to forest growth.

Key findings for carbon and climate change include the following:

- Working forests have long been recognized as a source of real and verifiable reduction in greenhouse gases and a cost-effective source of industrial greenhouse gas offsets.
- The EPA has concluded that there is "scientific consensus" that the carbon dioxide emitted from burning biomass for energy will not increase atmospheric carbon dioxide if done on a sustainable basis.
- Discussion of carbon and climate change implications must include the relationship between biomass, wildfires, and carbon emissions on public forest lands.
- Scientifically sound and credible carbon life-cycle analyses are needed to demonstrate the superiority of using wood for energy when compared to other energy pathways, particularly from fossil fuels.

4. Related Policies. Policy initiatives have led to a large number of laws and regulations that lay out a patchwork of mandates, incentives, and barriers to the use of woody biomass for energy. This collection of sometimes conflicting legislation represents the current "policy" with respect to wood-for-energy (see Box on page 21). Clearly, energy and carbon policies can have dramatic economic impacts as well as energy and environmental impacts.

Key policy recommendations include the following:

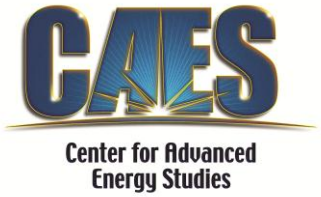
- Set realistic renewable energy goals with properly designed and scaled mandates and incentives.
- Treat all biomass energy facilities the same, regardless of age.
- Keep forests as forests.
- Increase domestic supplies of wood.
- Ensure sustainability in all uses of wood.
- Reward appropriate scale and efficiency.
- Maintain a simple, consistent definition of biomass.
- Achieve reliable carbon accounting for all energy sources, including wood.
- Maintain accurate feedback mechanisms on the use of forest resources over time.
- When addressing the role of agriculture and forestry in renewable energy production, the 25x'25 Alliance has always adhered to the philosophy of "yes if" rather than "no because." "Yes," woody biomass can be an important feedstock for renewable energy "if" we are willing to:
- Take the necessary steps to ensure that the use of biomass occurs in a wise and sustainable manner with appropriate feedback mechanisms

- Choose the most efficient uses for wood in producing energy
- Take the necessary steps to restore our private and public forestlands to reach their productive potential for wood as well as the many other benefits they provide to society
- Invest in research and technology development

There are a large number of recent laws and regulations that lay out a patchwork of mandates, incentives, and barriers to the use of woody biomass for energy. This collection of sometimes conflicting legislation represents the current "policy" with respect to wood-for-energy. The more significant national policies include the:

- Biomass Research and Development Act of 2000 (Biomass Act) [Pub. L. No. 106-224]
- American Jobs Creation Act of 2004 Energy Policy Act (EP Act) of 2005
- Energy Independence and Security Act (EISA) of 2007
- Food, Conservation, and Energy Act of 2008(Pub. L. 110-246)
- American Recovery and Reinvestment Act of 2009
- Prevention of Significant Deterioration/Title V Greenhouse Gas Tailoring Rule proposed by EPA

Our forests and the woody biomass they produce can be sustainable for energy and traditional forest products, as well as myriad other public uses and benefits. The use of wood for energy, far from decimating our nation's public and private forestlands, should be considered an opportunity to enhance and expand both the extent and productive capacity of those forestlands.



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