

# SUSTAINABLE WOODY BIOMASS



[www.homegrownprosperity.org](http://www.homegrownprosperity.org)

**SUMMER 2008**

*Under a carefully laid out set of guidelines, it is possible to harvest biomass from public and private forests to supply clean and efficient energy, while also providing income needed to support forestry restoration activities, fire prevention, remove invasive species, enhance wildlife habitat and watersheds, and revive rural economies.*

*A variety of bills in Congress and state, local and international examples provide insights into the utilization of this resource in a safe, sustainable way.*

*Woody and green biomass from public and private forests can be converted into wood chips or pellets to generate heat in efficient boilers or furnaces, can be used as feedstock for cellulosic ethanol or it can generate electricity, or feed combined heat and power (CHP) generators, or be gasified and used for heat.*

## **Community Scale Heat and Power**

This strategy connects rural communities to their forest resources, bringing together climate change reduction, renewable energy, and sustainable forestry on an appropriate scale. It is characterized by community scale technology, and does not export power. It replaces fossil fuels with local biomass for heat and power. It uses efficient, clean technology, and can be sustained without stressing the regeneration of the forest.

Community uses for local energy include combined heat and power (CHP), community district heating, heat for schools and other public institutions, wood-fired campus energy systems.

## **Woody Biomass Assessment**

One key to sustainably harvesting woody biomass without damaging the health of the forest ecosystem is to involve public stakeholders in the process of determining what can safely be harvested from area forests. An example of such a process was conducted by Northern Arizona University in Flagstaff, which put together a "Woody Biomass Assessment" by convening stakeholders, including conservation organizations, local foresters, scientists, and citizens. The group reviewed 2.4 million acres of mostly federal forests in the region. It agreed on 26% of the forests that should not be thinned for commercial wood byproducts, 33% was under contention, and 41% could be made available, which would provide 850 million cubic feet in tree trunks plus 8 million green tons, more than exceeding the current market demand for biomass in that region.

## **Austria**

Rural Austria is over 40% forested, and biomass is a stable domestic industry. Biomass projects are highly local. In one example, 18 farmers run a district heating co-op using wood chips fed into a hyper-efficient furnace that heats water, which is then fed through a network of pipes underneath the village to heat homes. In another site, wood, straw and other waste products are fermented, creating gases that are burned to create electricity which goes into the grid. The co-generated heat is also used in the process to dry wood chips that are then compacted into wood pellets. These projects have helped to revive rural economies. ("Biomass in Austria: An Adventure in Pictures: The human-scale, renewable, domestic power systems reviving rural Austrian economies," Gristmill, July 16, 2008.)

## **Combined Heat and Power**

Combined heat and power (CHP) systems (also known as cogeneration) generate electricity (and/or mechanical energy) and thermal energy in a single, integrated system. This contrasts with common practice in this country where electricity is generated at a central power plant, and on-site heating and cooling equipment is used to meet non-electric energy requirements. The thermal energy recovered in a CHP system can be used for heating or cooling in industry or buildings. Because CHP captures the heat that would otherwise be rejected in traditional separate generation of electric or mechanical energy, the total efficiency of these integrated systems is much greater than from separate systems. (Source: American Council for an Energy Efficient Economy)

## Minnesota

The State of Minnesota has adopted state sustainability guidelines for use of woody biomass for CHP, district heating, and other renewable energy systems. It has funded research on restoration forestry to conduct activities removing invasive plants and thinning biomass in overgrown natural areas thereby restoring historic forest ecosystems while utilizing the fuels for district heating in St. Paul. The state also has allocated funding to train loggers and foresters, and to conduct ongoing monitoring of outcomes. See <http://www.frc.state.mn.us/FMgdline/BHGC.html>

## Cellulosic Ethanol

Currently significant quantities of woody biomass cannot be utilized as part of the federal Renewable Fuel Standard, unless they are harvested from privately owned plantations. The Energy Independence and Security Act of 2007 limits what kinds of woody biomass can be obtained from private forests; and places even more restrictions on feeding cellulosic ethanol plants from federal forests, limiting it to only hazardous fuels reduction around existing structures and communities.

Proponents of amending the RFS to expand the definition of eligible woody biomass note that the EISA is so restrictive that sawmills and pulp operations' residues could not be used, as some may come from federal forests that are off limits. They argue that a cellulosic ethanol market will make restoration forestry more economically viable, and reduce the pressure to sell private forests to development interests. They argue that there are sufficient resources available from currently roaded areas for a significant contribution of low carbon, renewable liquid fuels.

Other conservationists fear that cellulosic ethanol could result in the "mining" or unsustainable demand on federal forests to meet industry needs.

If federal forest residues are going to be utilized for commercial cellulosic ethanol, the amount available for sustainable harvest must be determined for each particular forest in a carefully designed, broadly inclusive and scientifically credible public process.



WORC is a regional network of seven grassroots community organizations, which includes 10,000 members and 44 local chapters. WORC helps its member groups succeed by providing trainings and coordinating regional issue campaigns.

### Billings Office

220 S. 27<sup>th</sup> Street, Suite B  
Billings, MT 59101  
billings@worc.org  
www.worc.org  
(406)252-9672

### Lemmon, SD Office

2307 5th Ave NE  
Lemmon, SD 57638  
jerilynn@worc.org  
(701) 376-7077

### Washington, D.C. Office

110 Maryland Ave., NE, #306  
Washington, DC 20002  
dc@worc.org  
(202)547-7040

### Montrose, CO Office

60584 Horizon Road  
Montrose, CO 81403  
montrose@worc.org  
(970)323-6849

## WORC Member Groups

### Dakota Resource Council

PO Box 1095  
Dickinson, ND 58601  
drc@drcinfo.com  
www.drcinfo.com  
(701)483-2851

### Northern Plains Resource Council

220 S. 27th St., Suite A  
Billings, MT 59101  
info@northernplains.org  
www.northernplains.org  
(406)248-1154

### Dakota Rural Action

PO Box 549  
Brookings, SD 57006  
action@dakotarural.org  
www.draction.org  
(605)697-5204

### Oregon Rural Action

PO Box 1231  
La Grande, OR 97850  
info@oregonrural.org  
www.oregonrural.org

### Idaho Rural Council

PO Box 118  
Bliss, ID 83314  
irc@idahoruralcouncil.org  
www.idahoruralcouncil.org  
(208)352-4477

### Powder River Basin Resource Council

934 N. Main St.  
Sheridan, WY 82801  
resources@powderriverbasin.org  
www.powderriverbasin.org  
(307)672-5809

### Western Colorado Congress

P.O. Box 1931  
Grand Junction, CO 81501  
info@wccongress.org  
www.wccongress.org  
(970)256-7650