Sustainable Biomass Energy: The Need for a Comprehensive Energy Policy that Includes Thermal Energy

The members of the Rural Voices for Conservation Coalition (RVCC)[1] and the Coalition for Eastern Forests and Communities (CEFC) are working in partnership to advocate for public policy that supports the development of appropriately-scaled renewable energy. This approach can promote community-driven solutions and create robust local economies built on clean energy jobs and infrastructure when energy resources are used efficiently and in ways that support the long-term health of the nation's ecosystems. Currently, national renewable energy policy does not include a thermal energy component; yet this sector is best suited to capture the most total energy from biomass resources and support economic health in rural communities. To develop this important energy sector successfully, public policy must play a critical role in addressing issues of scale, efficiency, biomass supply and harvesting, environmental and socioeconomic impacts, and investment and financing.

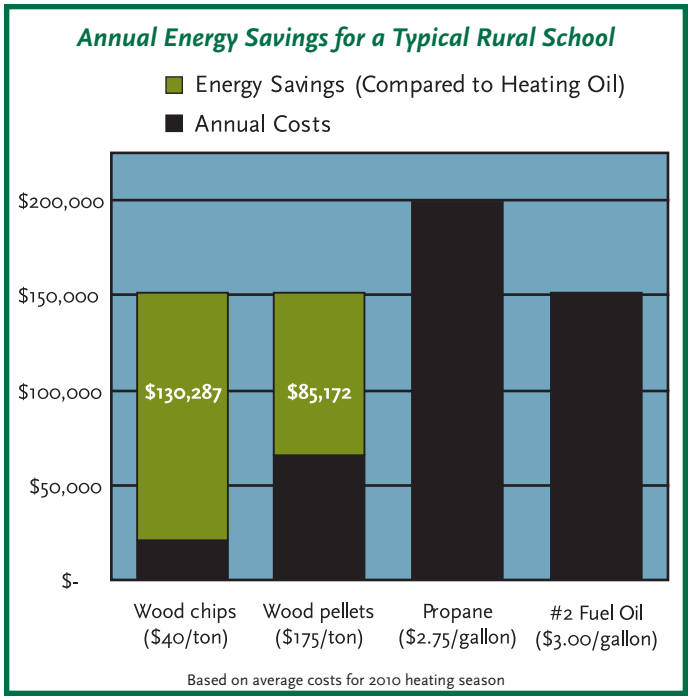
Framing Concepts

• **Thermal energy represents one-third of our national energy consumption, yet no thermal component exists in national renewable energy legislation.** Thermal energy is used both to heat buildings and as process heat in the manufacturing sector.

• **Woody biomass is a finite resource that must be used efficiently to maximize renewable energy outcomes.** Overall, woody biomass is most efficiently used to produce thermal energy. Modern combustion technology enables institutional wood-fired boiler systems to operate efficiently and cleanly.

• **Rural communities in the Northeast and many public land communities across the West rely on fossil fuels for thermal energy.** Rising costs of petroleum-based energy have significant economic impacts in small, displaced communities. Utilizing woody biomass as an alternative to produce thermal energy is a commercially viable, cost-efficient means to reduce dependence on foreign oil and produce energy savings in rural economies.

• **District heating systems and medium to large process heat applications are also well-suited to produce byproduct electricity in high efficiency combined heat and power applications.** Such appropriately-scaled and geographically distributed renewable energy development can provide significant energy efficiency and cost savings to businesses and community facilities.



[1]The RVCC has developed two issue papers that provide contextual background and recommendations for developing national policies related to woody biomass utilization and thermal energy. This paper builds off of our existing papers by providing specific recommendations for promoting appropriately-scaled renewable energy policy. All RVCC issue papers can be accessed by visiting: http://www.sustainablenorthwest.org/resources/rvcc-issue-papers

This paper was written collaboratively by the Coalition for Eastern Forests and Communities and the Rural Voices for Conservation Coalition. These two coalitions are comprised of eastern and western, regional and national organizations and represent a nationwide effort to bring more rural and community forest voices to the policy table.

Coalition for Eastern Forests & Communities

RVCC Rural Voices for Conservation COALITION

Principles

• **Sustainable forest stewardship is critical to developing the use of woody biomass as a source of renewable energy.** Forest management policy and practice need to ensure that increased removals for biomass energy maintain long-term forest health and productivity. In a western context where much of the forestland is managed by the federal government, significant opportunities exist to utilize the byproducts of forest restoration and these activities are addressed by a set of existing federal land management laws. Biomass harvesting must not contribute to net land use changes resulting in a loss of forest cover, land conversion to non-forest uses and should account for the re-sequestration of carbon stocks over time. Use of woody biomass as a substitute for fossil fuels can reduce emissions of geologic carbon and can improve the overall carbon balance of restoration treatments. The use of biomass harvesting guidelines, state environmental review and permitting and/or third-party certification may be necessary to ensure sustainability on private forestlands.

• **Woody biomass should be used as efficiently and cleanly as possible for energy generation.** Biomass energy sources, technologies and applications vary in efficiency and related emissions. With current technology, the generation of thermal energy produces the most potential energy from woody biomass, capturing up to 90% of the energy content. Use of biomass for energy has tremendous potential to displace the consumption of petroleum-based heating fuels.

• **Energy facilities must be appropriately-scaled to be sustainable over time.** Policies that result in parity among renewable energy sectors are necessary to allow project developers to pursue renewable energy facilities that are scaled for specific ecological, social and economical conditions, as compared to current policies that tend to encourage development of facilities that are either too large for the given ecological conditions or make inefficient use of resources.

• **Distributed generation is essential to creating robust local economies.** A distributed network of appropriately-scaled facilities provides opportunities for wealth capture for rural economies, promotes local equity and ownership models and maximizes energy production both in terms of generation and transmission. Energy investment, both public and private, is most leveraged when wealth is generated, captured and retained in the local economy. Providing local energy for heat and high efficiency combined heat and power operations at the community-scale supports a dynamic and resilient local wood energy economy.

Renewable Thermal Energy Tax Package

The following list of amendments to the 1986 tax code would promote the clean and efficient use of renewable thermal energy:

1. For existing facilities, amend Section 45 regarding the Production Tax Credit (PTC) to:

a. Extend and increase the credit for the electricity produced equal to that of other renewables, such as solar and wind, for any biomass facility with system efficiency greater than 60%.

b. Allow for the useful thermal energy from combined heat and power facilities with system efficiencies greater than 60% to qualify for the Production Tax Credit (PTC). Facilities could elect to receive the credit based on electricity or thermal output (see H.R. 5805 as introduced in the 111th Congress).

2. To spur development of new facilities, amend Section 48(a)(3) to extend Investment Tax Credits to:

a. Biomass Heating Property with system efficiencies greater than 60% (see S. 3188 as introduced in the 111th Congress).

b. Existing combined heat and power systems that increase the capture of thermal energy and increase overall system efficiency by 30%.

3. For the residential sector, amend Section 25C to increase tax incentives to $1500 to convert home heating systems from petroleum-based fuels to wood-based fuels and to upgrade existing residential woodstoves to EPA-certified emissions technology (see S. 1643 as introduced in the 111th Congress).

4. For the public sector and institutional-scale projects, amend Section 54D to allow the use of tax-exempt energy conservation bonds to finance conversions of fuel oil heating systems by amending the definition of "qualified conversion purpose" (see S. 1643 as introduced in the 111th Congress).

Solution Criteria and Specific Recommendations

National energy policy must include thermal energy to be comprehensive.

National energy policy should address all three major energy sectors: electricity, transportation and thermal energy. However, current federal renewable energy policy does not include a thermal energy component. Growth of domestic renewable thermal energy resources can help reduce the nation's reliance on foreign petroleum, increase energy security and support local green jobs.

Specific Recommendations

1. Pass a resolution clarifying that the production of renewable thermal energy is a priority of national energy policy.
2. Redirect a portion of the Department of Energy "bio-fuels" funding towards development and installation of appropriately-scaled thermal-only and combined heat and power applications to spur commercialization of emerging technologies and more cost effective deployment of existing technologies.
3. Develop and pass a Renewable Thermal Energy Act that includes:
   a. Goals for renewable thermal energy production, prioritizing use of domestic fuels;
   b. Grant programs and/or revolving loan funds to retro-fit existing boilers at institutional facilities;
   c. Tax incentives designed around an energy efficiency threshold for new and existing facilities to capture more total energy from renewable resources;
   d. Tax incentives for residential woodstove upgrades to EPA-certified emissions technology; and
   e. Increased authorization for key programs in the 2008 Farm Bill and 2007 Energy Bill, such as the Community Wood Energy Program.
4. Require that buildings receiving public funding include a feasibility analysis to explore the potential to utilize renewable thermal energy.

National energy policy should promote the most efficient technologies and uses of energy resources.

Policy should promote parity among renewable energy sectors and incentives should promote the most efficient use of domestic renewable energy resources. In addition, investments in renewable energy must be coupled with meaningful strategies to reduce overall consumption across energy sectors. For woody biomass, an energy efficiency threshold mechanism can be used in conjunction with tax incentives to promote the highest potential energy capture from the most efficient and cleanest technologies.

Specific Recommendations

1. Extend and increase the Production Tax Credit (PTC) equal to that of other renewables for any biomass facility able to document system efficiency greater than 60% by amending Section 45(d) of the 1986 tax code.
2. Allow for the useful thermal energy from combined heat and power facilities with system efficiencies greater than 60% to qualify for the Production Tax Credit (PTC). Facilities could elect to receive the credit based on electricity or thermal output (see H.R. 5805 as introduced in the 111th Congress).
3. Include a Renewable Energy Credit multiplier for high efficiency combined heat and power facilities when developing national goals for renewable energy production.

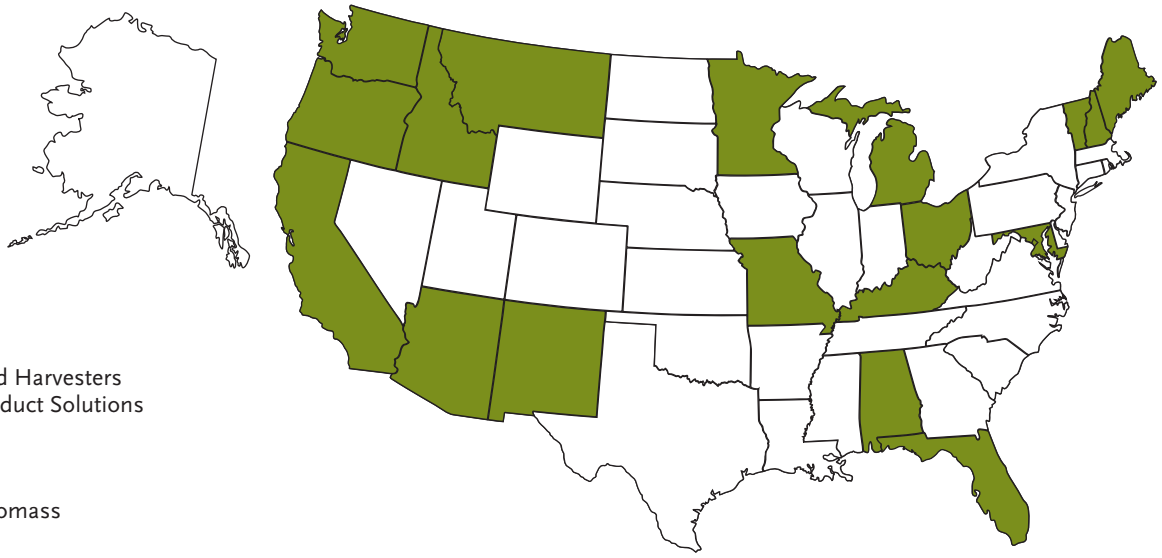
National energy policy should provide access to working capital to catalyze an appropriately-scaled renewable energy sector.

Access to working capital is the largest barrier to growth of the biomass energy sector. Federal incentives should be of adequate duration and have enough certainty to allow incorporation into business planning. Incentives should prioritize the development of new facilities and increased energy capture at existing facilities. One-time initial investments will leverage long-term outcomes and provide for durable businesses and local employment.

Specific Recommendations

1. Create a Revolving Loan Fund to capitalize retro-fits of boilers at institutional facilities to utilize renewable thermal energy (see H.R. 4227 as introduced in the 111th Congress).
2. Amend the USDA Rural Development Business & Industry Loan Program and the Renewable Energy for America Program to allow USDA loan guarantees to be used for financing the construction of community-initiated renewable energy projects.
3. Amend Section 48(a)(3) of the 1986 tax code to extend Investment Tax Credits to:
   a. Biomass Heating Property with system efficiencies greater than 60% (see S. 3188 as introduced in the 111th Congress).
   b. Existing combined heat and power systems that increase the capture of thermal energy and increase overall system efficiency by 30%.
4. Appropriate funding for the following key programs:
   a. Community Wood Energy Program: authorized at $5 million in the 2008 Farm Bill.
   b. Energy Sustainability and Efficiency Grants and Loans for Institutions in Section 399A of the 2007 Energy Bill.
5. Allow the use of tax-exempt energy conservation bonds to finance conversions of fuel oil heating systems by amending the definition of "qualified conversion purpose" in Section 54D of the 1986 tax code (see S. 1643 as introduced in the 111th Congress).

Coalition Partners



Alabama
Tuskegee Volunteer Power Coalition

Arizona
Forest Energy Corporation
Northern Arizona Wood Products Association

California
Alliance of Forest Workers and Harvesters
Calaveras Healthy Impact Product Solutions (CHIPS)
Fourth Sector Strategies
Mattole Restoration Council
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Woody Biomass Utilization Partnership

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American Forests
Pinchot Institute for Conservation

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