Guide to Public Outreach for Biomass Projects

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CONTENTS

PREFACE ......................................................................................................................................................... 3
INTRODUCTION .................................................................................................................................................. 4
PART I: EARLY STAGE BROAD PUBLIC OUTREACH AND COMMUNITY EDUCATION ........................................ 6
Steps to Successful Public Biomass Education ............................................................................................ 7
  Step 1) Identify an Outreach Team and Key Stakeholders .................................................................. 7
  Step 2) Community Education about Common Biomass Concerns ................................................... 9
  Step 3) Identify Outreach Tools & Create Materials ........................................................................... 13
Conclusion .................................................................................................................................................. 14
PART II – PUBLIC OUTREACH FOR A SPECIFIC ENERGY PROJECT ................................................................ 15
Components of a Successful Public Outreach Campaign .............................................................................. 18
  Identify the Outreach Team and Key Stakeholders ............................................................................ 19
    Biomass Public Outreach Case Study 1 ............................................................................................... 22
  Integrate Public Outreach with Project Management ........................................................................... 23
    Biomass Public Outreach Case Study 2 ............................................................................................... 26
  Develop an Outreach Strategy ................................................................................................................ 27
  Develop Key Messages ........................................................................................................................... 28
    Biomass Public Outreach Case Study 3 ............................................................................................... 31
  Identify Outreach Tools & Create Materials .......................................................................................... 32
    Biomass Public Outreach Case Study 4 ............................................................................................... 35
  Actively oversee and manage outreach throughout project lifespan ................................................. 36
Conclusion .................................................................................................................................................. 37
APPENDICES .................................................................................................................................................. 38
  Appendix 1: Biomass Resources ........................................................................................................... 39
  Appendix 2: Who are the Stakeholders? ................................................................................................. 43
  Appendix 3: Commonly Asked Questions (and answers). .................................................................. 45
Appendix 4: Outreach Tools ..................................................................................................................... 51
Appendix 5: Education Plan Template ..................................................................................................... 53
Appendix 6: Working with the News Media ............................................................................................ 54
Appendix 7: City of Montpelier, Vt. District Heat Bond Vote Article .......................................................... 56
Appendix 8: State Forestry Agencies ....................................................................................................... 63
Throughout this Guide the term biomass is used to refer to woody materials used for energy. This woody material may come from forest harvest residues, wood products manufacturing residues, from urban tree care operations, power line right of way maintenance, clean urban wood residues (pallets, dunnage, and untreated construction residues), land clearing residues, or tree plantations grown specifically for energy purposes. Projects utilizing other forms of biomass such as sewage sludge, crop residues, animal manures, may have very similar requirements for public outreach. However, the experiences and guidelines provided here address projects utilizing woody materials to provide energy for individual and multiple building sites.
Communities throughout the US are asking the same question: how do we lower our energy costs and become less dependent on fossil fuels? As communities begin to explore new ways to minimize their use of fossil fuels, woody biomass energy is one alternative. Biomass energy is a renewable energy source from biological material. Biomass energy can be derived from wood and other agricultural products, solid waste, and landfill gas or biogas. This outreach guide refers specifically to woody biomass.

There is a significant volume of low-grade woody biomass in the United States that represents a valuable economic and environmental opportunity if it can be constructively used to produce energy. Commercially available heating systems can provide heat cleanly and efficiently in many commercial, institutional and municipal applications. Heating technologies are being used quite successfully in over 47 public schools in Vermont alone and the concept of heating institutions with wood is catching on in several other areas of the United States and Canada. Good candidate facilities for energy systems include those that have high heating bills, those that have either steam or hot water heating distribution systems and those that have ready access to reasonably priced woody biomass fuel.

The process of implementing wood energy can work differently in different communities and institutions, but often follows a similar path. A community member or staff person has a glimmer of an idea that woody biomass can work in their community to solve an energy issue. That glimmer turns into the desire to have a pre-feasibility study done to see if this idea makes economic sense. Consultants are brought in to undertake those studies. If the preliminary study shows that “yes, this seems to make sense for your community,” the community or facility owner should have a more in-depth feasibility analysis completed that includes engineering details such as the exact equipment that is recommended, more detailed estimates of cost and impact, and a financial analysis. If this analysis identifies no obstacles, the community, or the facility owner, will need to secure funding for biomass energy. Then the community needs to engage contractors and engineers to design and install and commission the system.

Public outreach happens throughout this process. The key to success in bringing wood energy to your community, assuming it is a good fit, is ensuring the public is educated and informed throughout the process. Ideally, public outreach should begin as soon as the idea of woody biomass is brought to the table. Engaging community members at this point in learning more about the big picture of wood energy is critical. This outreach serves to educate and inform but also engages people who may go on to become part of your outreach or implementation team. Public engagement should help frame the questions addressed in the pre-feasibility study.

Once the pre-feasibility study is completed, the public needs to be informed of the results, and to see that their concerns have been addressed. If the results are promising, public
engagement may be needed to identify and commit the resources to complete a full feasibility study. The results of the full feasibility study must also address public concerns. If the results are favorable, and if public investment is needed to implement biomass energy, effective public outreach will be essential to securing support needed to move ahead. Before agreeing to invest in wood energy, community residents will want to have a clear picture of what it is they are buying, how much it is going to cost them and what the impacts will be. Even if the woody biomass project in question is to be privately financed, if it is at a sufficiently large scale, public engagement will enhance its acceptance by the community and may result in opportunities for community benefit.

This guide is meant to show you the steps to effective public outreach. It is divided into two sections. Part I discusses the more basic and broader type of outreach that you would implement earlier on in the process as you want to turn that glimmer of an idea into something more. This is when you want to educate the community about what wood energy is and why it makes sense to explore its possibilities. Part II discusses the more detailed and strategic public outreach required when feasibility studies lead you to believe that wood energy makes sense and you want to engage your community in moving forward. The appendices include additional information, outreach tools, resources and templates that are specifically geared toward a biomass outreach and education campaign. The resources contained in this guide come from a variety of sources, which are noted throughout the document. Please feel free to modify them for your own purposes.
Part I: Early Stage Broad Public Outreach and Community Education

Part I of this guide provides a strategy for educating your community about wood energy, before an actual wood energy project is discussed. The purpose of education at this early stage is for the community to learn about what wood energy is and have the opportunity to address inaccurate perceptions before a wood energy project is proposed to the community.

If you already have a pre-feasibility or feasibility study, or you have a specific project to propose, please refer to Part II of this guide, which provides a strategy for outreach around a specific project.

Scenario One: No Community Education

In an effort to minimize dependence on fossil fuels, Town officials decided to pursue the use of wood energy in municipal buildings. A consultant was hired to conduct a pre-feasibility study, which found that biomass energy would make sense. Then Town officials engaged another consultant to conduct a feasibility study to learn more about what type of configuration and equipment would make sense and what next steps were necessary for implementation. Town officials brought a proposal to bond for the necessary funds to the town residents. The proposal was rejected, as residents had not been educated about the realities of biomass energy or the studies completed on the specific project.

Scenario Two: Use of Community Education

Town officials engaged the community even before hiring the first consultant. Residents had opportunities to learn about what biomass energy is and is not, what its pros and cons are, and dispel any myths about using biomass energy. When consultants completed studies, public presentations were made, allowing residents to ask questions and raise concerns. If concerns were not addressed with existing information, additional study was done and components of the project were adjusted to address concerns. When the bond vote came to the residents, they voted for the bond, as they understood why biomass was a good idea for their community and how it would benefit them.

As Scenario One illustrates, the time to conduct community education about biomass is when a community is beginning to think about renewable energy, before engaging consultants in conducting pre-feasibility and feasibility studies. The rejection in Scenario One can often be prevented through public education that facilitates community understanding of the potential benefits of woody biomass energy and how it works, before attempting to garner approval and/or funding for a specific project.
STEPS TO SUCCESSFUL PUBLIC BIOMASS EDUCATION

As soon as a community becomes interested in biomass energy, the community should educate its residents about biomass energy and its advantages and disadvantages. Public education should not be thought of as an “add-on” activity. This initial education will set the stage for more detailed public outreach that happens later as a particular project is being discussed. While the messages in outreach around a specific project may be geared toward the details and advantages of that project, in this broad educational stage, the message is more focused on the basics of biomass energy, its general advantages and disadvantages, applicability to community energy goals, and the logistics of integrating biomass energy into municipal spaces. The public outreach process begins with an outreach team.

ISSUE: COMMUNITY NOT INCLUDED EARLY ENOUGH

A small private college in rural Vermont began to investigate the potential for a biomass heating plant for the campus. The preliminary studies looked good and the college began moving forward with developing the project. In order to build the project, the college needed a local zoning permit and a state-issued, land-use regulatory permit that evaluates the environment, social and fiscal impacts of major development in the state. The process of acquisition of these permits allows neighbors and community members the opportunity to oppose the project. There is a history of “Town/Gown” issues between the college and the community, and neighbors of the college are now protesting the development of the biomass plant. The college was issued the local zoning permit but neighbors of the project have appealed. Based on this opposition, the college has hired a lawyer to represent them in the permitting process to ensure that they have an air-tight case. While the college felt like it was being a good neighbor (voluntarily adding very expensive pollution control equipment to the project to reduce emissions), community members feel like the college did not communicate with them early enough and has not provided a mechanism for them to share their concerns.

STRATEGY:

This problem could have potentially been avoided if the college had brought the community into the process early on, let them know that they were looking at the potential for biomass, provided education about biomass energy and listened to any potential concerns. The college could have worked with their consultants to address community concerns in the feasibility studies. If the college was able to address community concerns at the feasibility study phase, they could have avoided the cost of hiring a lawyer to address the concerns during the permitting phased.
### Issue: Lack of Familiarity

A community champion proposes a biomass heating system to the school board when considering a bond for an addition to the high school. Even though the community champion is able to show very compelling numbers, the school board is uncomfortable with the concept and continually finds reasons for not considering a biomass system.

### Strategies:
- **Persistence** – Community champion went to every school board meeting for two years.
- **Educate Others** – Community champion worked with the school’s engineer and consultants to show them the benefits of a biomass system.
- **Persuasive Argument** – Community champion presented information that was accurate and compelling.

### Outcome:
The school board eventually considered the issue and realized the numbers were too good to pass up and they had to do a separate bond. The bond for the addition passed 52/48 and the bond for a woodchip plant a year later passed 60/40. People stopped the community champion on the street and said “I am really glad you did that woodchip thing.” It saved as much money as they thought.

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### Step 1: Identify an Outreach Team and Key Stakeholders

#### Create an Outreach Team

It is essential to establish a team of people that are interested in educating the public about biomass energy. If possible, include people who have a background in communication, education or community relations. Be mindful that public opinion will be influenced by who conducts outreach efforts.

Outreach team members could include:

- Community Champion / Local Energy Committee Member
- Engaged community members
- Community members with technical expertise in renewable energy
- Town officials / Local government
- Key decision-makers

#### Identify Key Stakeholders

Stakeholders are individuals and groups who believe they are affected by decisions regarding biomass energy, those who can either help or hinder your progress. Possible stakeholders include:

- Neighbors
- Officials, including your State Forester
- Regulators
- Business Leaders / Interests
- Civic / Citizens Groups
- Environmental Groups
- Senior Citizens
- Religious Groups
- Educators
- Forest managers/landowners and wood products business owners
- State Forester

More detailed information about stakeholders can be found in Appendix 2.
STEP 2) COMMUNITY EDUCATION ABOUT COMMON BIOMASS CONCERNS

The more that people in the community understand about biomass energy, the better informed their decisions will be when an actual biomass project is proposed. The Outreach Team should be prepared to answer the following commonly asked questions:

More questions and answers can be found in Appendix 3.

COMMONLY ASKED QUESTIONS

WHAT IS BIOMASS?

Biomass is any biological material that can be used as fuel. Biomass fuel is burned or converted to a combustible material in systems that produce heat, electricity, or both heat and electricity, called Combined Heat and Power, or CHP. In this publication, biomass refers to woody materials, including woodchips, wood pellets, and other low-grade wood residues. Other common biomass fuel sources are agricultural crop residues and animal wastes.

WHY USE BIOMASS FUELS?¹

LOW FUEL COST

Low fuel cost is the main attraction of heating with woody biomass. Unlike fuel oil, propane, and natural gas, biomass - a proven technology used across the United States, Canada and Europe - has a history of stable prices that are largely unaffected by global economics and political events, making it a low cost alternative to fossil fuels.

LOCALLY AVAILABLE

Biomass is a locally available fuel source that can increase the region’s energy independence and security while stimulating the local economy by keeping energy dollars circulating in the region rather than exporting them. Using woody biomass also helps to support the forest products industry, creating markets and jobs in forestry and related industries in the surrounding region.

ENVIRONMENTAL BENEFITS

Biomass is a substitute for fossil fuels and can provide heating or heating and cooling from a renewable resource. Renewable energy is energy that comes from natural resources that are naturally replenished.

Utilizing biomass for energy can provide markets for materials resulting from forest fire hazard reduction efforts and from treatments to reduce insect and disease outbreaks. Such markets enable forest managers to treat more acres thereby improving forest health on a wider area.

¹ Community Roadmap to Renewable Woody Biomass Energy.
http://www.nhrcd.net/files/CommunityRoadmapToRenewableWoodyBiomassEnergy%20FINAL%2012%2015%20Footer%5B1%5D.pdf
It is important to remember that biomass is only considered a renewable energy source if the biomass is sustainably harvested. Other examples of renewable energy are sun, wind, water, and geothermal.

Carbon dioxide (CO2) buildup in the atmosphere is a significant cause of global climate change. Fossil fuel combustion takes carbon that was locked away underground (as crude oil, gas, and coal) and transfers it to the atmosphere as CO2. When wood is burned, however, it recycles carbon that was already in the natural carbon cycle. Consequently, the net effect of burning sustainably harvested wood fuel is that little or no new CO2 is added to the atmosphere, and if the biomass is replacing fossil fuels, the impact on the climate is reduced.

WHERE DOES WOODY BIOMASS COME FROM?

In years past, a majority of woody biomass used for community energy systems came from wood products manufacturing residues. Therefore, at that time, a decision to install a biomass system did not directly result in increased harvest from the region’s forests. Today, a large majority of wood fuel for new heating systems will come largely from low grade wood and will be provided as woodchips and wood pellets.

WOOD PRODUCTS MANUFACTURERS. The business of converting logs into lumber and other wood produces a significant amount of woody residues (slabs which can be chipped, bark, and sawdust). Because logs are debarked before sawing, sawmill chips are very clean and have relatively low ash content. Sawmill chips are also commonly screened to remove over-sized stringers and fines. These “mill” or “paper” chips are excellent fuel for biomass heating systems.

LOGGING CONTRACTORS. Commercial harvesting of sawlogs and pulpwood removes the main stem or bole of the tree from the woods and leaves the tops and limbs either scattered in the woods near the stump or in a large pile at the log landing. Whole-tree harvesting—mechanized harvesting where entire trees are dragged (skidded) from the stump to the central log landing instead of just the log—requires the tops and limbs be removed and piled at the log landing. These harvesting residues can be chipped into biomass fuel. If the material being chipped includes branches, leaves, and bark it is commonly known as whole-tree chips. Logging contractors may also be engaged in land clearing operations in many regions. Land clearing may be taking place as a result of housing development, utility line construction, or farmland development. Land clearing residues, while not a sustainable source of supply, can provide biomass material for energy projects which is a better alternative than open burning or landfilling these residues. If the material is debarked prior to chipping and leaves are not included the material may be referred to as bole chips. For more information on harvesting guidelines in your state, please contact your State Forestry Agency (see Appendix 8).

MUNICIPAL WOOD/TREE CLEARING. The utilization of urban and municipally-managed trees (such as those along public roadways) for wood products is still a fairly new concept, but research has shown that this is a valid source of sustainable wood products and municipalities are starting to invest in the equipment required to utilize biomass energy from urban and municipal wood residue.

WOOD RESIDUE BROKERS. Wood residue brokers provide woody materials to a wide range of clients for a wide range of products. Using a wood residue broker to obtain biomass for
an energy project may offer advantages over sourcing biomass fuel directly from multiple sawmills or logging contractor sources. Brokers are able to pool volumes of chips from multiple sources to meet market demand. In many cases, brokers also provide increased supply reliability by immediately drawing upon different suppliers should one supply source experience an interruption to their operations. Your State Forestry Agency (see Appendix 8) may be able to help you find woody biomass suppliers operating in your area.

HOW WILL THE USE OF BIOMASS HELP ACHIEVE COMMUNITY ENERGY GOALS?

The use of biomass can help achieve a variety of community energy goals. Several potential goals are listed below.

GOAL: WE HAVE LOWER ENERGY COSTS.
Once capital investments are made, biomass fuels used for heating are significantly less expensive than fossil fuels on a cost/Btu basis. Fuel savings cover the cost of capital investments over some period of time. Long-term contracts for biomass can provide stable pricing with little impact from global economic and political events.

GOAL: WE ARE ENERGY INDEPENDENT.
Woody biomass is a highly efficient source of heat energy and may be used to meet most local energy needs for space heating. Biomass is typically obtained regionally or locally. The use of biomass reduces a community’s use of fossil fuels, and therefore makes the community more energy independent.

GOAL: OUR ENERGY IS RELIABLE.
Woody biomass may improve energy reliability depending on current conditions, supply continuity, and performance of biomass technologies. While communities tend to have more control over locally sourced energy, biomass fuel supply also can have reliability issues which must be addressed.

GOAL: WE EMIT LESS CARBON
While burning fossil fuels takes carbon that was locked away underground (as crude oil, gas, and coal) and transfers it to the atmosphere as CO₂, wood combustion recycles carbon that was already in the natural carbon cycle. As long as the biomass is sustainably harvested, no new CO₂ is added to the atmosphere. Replacing fossil fuels with sustainably harvested biomass reduces CO₂ emissions.

GOAL: WE RELY ON RENEWABLE ENERGY RESOURCES
Biomass is a substitute for fossil fuels and can provide heating or heating and cooling from a renewable resource. Renewable energy is energy that comes from natural resources that are naturally replenished. The energy source is considered “renewable” when the rate of generation is higher than the rate of use. In the case of biomass, this means the removal (and hence the use) of biomass must be less than the growth of biomass in the forest. It is

2 Community Roadmap to Renewable Woody Biomass Energy.
http://www.nhrcd.net/files/CommunityRoadmapToRenewableWoodyBiomassEnergy%20FINAL%2012%2015%20%20footer%5B1%5D.pdf
important to remember that biomass is only considered a renewable energy source if the biomass is sustainably harvested.

GOAL: WE HAVE A STRONG LOCAL ECONOMY
Biomass sourced locally can create markets for low-value wood, keep energy dollars in the local economy, create and sustain jobs in the region, strengthen the regional forest-products industry and support sustainable forestry.

WHAT KINDS OF FACILITIES USE BIOMASS?³
Schools, colleges, universities, hospitals, public buildings, hotels and motels, commercial buildings, greenhouses, large-scale agricultural operations, manufacturing plants, power plants, and community district energy systems can all use biomass.

WHAT DOES A BIOMASS FACILITY LOOK LIKE?
You should be prepared with pictures of various installations. Some examples can be found on the Wood Education and Resource Center website and on the Biomass Energy Resource Center (BERC) website.⁴ Different heating specifications may require different biomass facility configurations. A full feasibility study is needed to identify the specific type of biomass facility for a specific location. Copies of feasibility studies are available on the Wood Education and Resource Center website.

WHAT WILL BIOMASS COST?
It is difficult to estimate costs until a full feasibility study is completed. A pre-feasibility study can identify whether it makes sense to pursue using biomass or not, and may be able to give a rough cost estimate.

WHERE WOULD YOU PUT A BIOMASS FACILITY?
A pre-feasibility study can identify a potential biomass location, but a full feasibility study is necessary to develop a specific site plan.

WHO ELSE IS USING BIOMASS? WHERE HAS IT WORKED?
Biomass is being used successfully around the United States, Canada, Europe, and Scandinavia. The BERC website has developed case studies for further information about who else is using biomass and where.⁵

More questions and answers can be found in Appendix 3

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Part I: Early Stage Broad Outreach and Community Education
Page 12
STEP 3) IDENTIFY OUTREACH TOOLS & CREATE MATERIALS

After creating an outreach team, identifying stakeholders, and determining the main information you want to disseminate, you will need to decide what types of outreach makes sense for different stakeholders. You will reach a greater number of community members if you use multiple types of tools. For community education, the most effective outreach tools include:

- Fact sheets
- Public meetings with stakeholders
- Information articles in your local newspaper
- Information on your website, if applicable

**TIP:** Advertise the agenda in your local paper and on community forum websites or online listservs. Get your local public access channel to broadcast meetings.

Make sure your outreach efforts communicate general biomass information and give community members an opportunity to voice their opinion and concerns. Before a specific project has been proposed is an opportune time to address varying community perspectives about biomass. In order to ensure people feel included in the educational process, be aware of the difference between education and advocacy.

**EDUCATION VS. ADVOCACY**

One decision to make prior to undertaking outreach is whether your strategy is focused on education or advocacy. This may depend on the makeup and members of your outreach team. In situations where there is distrust, opposition, or the need to establish credibility, it is recommended to avoid the appearance of only communicating one side (or advocacy). This involves considering how you, your outreach team and your approach are perceived. Ideas on minimizing the perception of advocacy include:

- When possible, include the advantages and disadvantages of using wood.
- When comparing wood to other fuel sources, try to weigh both evenly and be careful about word choices (e.g., avoid “coal-bashing”).
- Stick to facts and avoid assumptions, appeals to emotion, or opinionated statements.
- In a forum or community meeting, it can be helpful to use an independent facilitator.
- Openly state that there are many options and wood is just the one you would like to explore at this time. People appreciate honesty.
CONCLUSION

Educating the community about renewable energy before proposing a project can help address the common concerns that stakeholders have about biomass. Case studies show that the more community members know about biomass, the more likely they are to support it. Take the time now to educate the community before spending money to conduct a pre-feasibility or feasibility study.

LESSONS LEARNED / SUCCESSFUL STRATEGIES:

- MISCONCEPTIONS - The public often has many misconceptions about biomass. Acknowledge the questions and concerns people have, meet them head on, and make sure you have a plausible answer.
- PERSISTENCE – Put the time in to attend meetings and keep trying. It can take years for decision-makers to genuinely consider new ideas.
- PERSUASIVE ARGUMENT - You need to have information that is accurate and compelling to create a persuasive argument to decision-makers.
- POLITICAL ACTIVISM - Champions need to be effective, knowledgeable, and believable.
Part II of this guide will identify the key components in a successful public outreach campaign, share lessons from other biomass projects and provide information, tools and actionable guidelines for communicating with the public about your biomass energy project.

This section provides a strategy for conducting public outreach for a specific biomass project. Before beginning the work in Part II, you should have a completed pre-feasibility and/or feasibility study that shows that the biomass project makes sense (both physically and economically). If you did not provide general biomass education and outreach, as described in Part I of this guide, before receiving your feasibility report, it is important to provide this education now. Before trying to get approval and/or funding for a specific project, you want all decision-makers and people that will be affected by the project to understand how biomass energy works and the potential benefits of biomass energy to the community. Remember that members of the public usually do not know as much about biomass as you do, and it is your job to help them understand both the concepts and the specifics of the project.

The strategy in this section assumes that the community has a basic understanding of biomass energy and potential benefits for the community (see Part I) but you should always be ready to answer general questions about biomass as people may be more likely to get involved in the discussion once a specific project is being proposed. Please refer to Part 1 for answers to commonly asked questions about biomass.

It is important to note that this guide is designed to be useful for biomass projects ranging from, simple – where the biomass system serves one building with a single owner/decision maker - to complex – where the biomass systems serves multiple buildings with multiple owners/decision-makers. The difficulty of implementing a biomass project usually increases with the number of decision-makers involved and the need for public outreach becomes even more important.
WHAT IS PUBLIC OUTREACH?

Public outreach includes a variety of activities through which information about a biomass energy project is shared and feedback from stakeholders is obtained. Public outreach can be used to identify the main values, goals, perceived benefits and concerns of the community. This information will help you to ensure that the public outreach surrounding a biomass energy project addresses community concerns.

Public outreach should be used to understand and address the community’s perceptions and concerns about the biomass energy project.

TIP: Effective public outreach involves listening to individuals, sharing information and addressing concerns through proactive community engagement.
WHY DO PUBLIC OUTREACH?

Experience has shown that the absence of a concerted outreach effort often leads to public opinions that are influenced by inaccurate perceptions of biomass energy, project risks and benefits. Public outreach and education should not be thought of as an “add-on” activity.

The more the people in the community understand about the proposed biomass application, the more willing they will be to make decisions and the better informed their decisions will be.

SCENARIO ONE: NO COMMUNITY EDUCATION

In an effort to minimize dependence on fossil fuels, Town officials decided to pursue the use of biomass energy in municipal buildings. A consultant was hired to conduct a pre-feasibility study, which found that biomass energy would make sense. Then Town officials engaged another consultant to conduct a feasibility study to learn more about what type of configuration and equipment would make sense and what next steps were necessary for implementation. Town officials brought a proposal to bond for the necessary funds to the town residents. The proposal was rejected, as residents had not been educated about the realities of biomass energy or the studies completed on the specific project.

SCENARIO TWO: USE OF COMMUNITY EDUCATION

Town officials engaged the community even before hiring the first consultant. Residents had opportunities to learn about what biomass energy is and is not, what its pros and cons are, and dispel any myths about using biomass energy. When consultants completed studies, public presentations were made, allowing residents to ask questions and raise concerns. If concerns were not addressed with existing information, additional study was done and components of the project were adjusted to address concerns. When the bond vote came to the residents, they voted for the bond, as they understood why biomass was a good idea for their community and how it would benefit them.
The most effective outreach will be conveyed by people who are trusted by a community. Some segments of a community may deeply trust a faith or school leader. Other segments of a community may trust a political leader or media personality. Think about who you want to reach out to and who each of your target audiences trusts. Enlist those people as spokespeople to directly reach out to their constituents, speak to the media, or appear in advertisements.

Don’t just send anyone into the community to reach out and recruit participants.

Do identify trusted ambassadors to explain why people should participate.

While every project is unique, there are some key public outreach strategies that everyone developing a biomass project should use:

- Get as much information out as soon as possible.
- Meet with as many legitimate stakeholders as possible early and often.
- Really listen to concerns—take 24 hours before trying to address concerns so that you have some time to let them sink in and let your immediate response pass.
- Make sure the benefits of biomass are clearly articulated (e.g. “Biomass=Jobs” bumper stickers).
- Don’t feel the need to give your opponents a platform; engage with them and engage publicly, but this doesn’t need to be in a large public forum.
- Get out and tell your story. Other industries are out there telling their stories. Your opponents are out there telling a story.
- Pay attention to other biomass projects taking place across the country; there will always be something you can learn.

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IDENTIFY THE OUTREACH TEAM AND KEY STAKEHOLDERS

CREATE A STRONG OUTREACH TEAM

A strong outreach team consists of people who are focused on communicating with the public about the biomass energy project. It will be helpful if this team has clearly defined roles and responsibilities. It is essential that the outreach team includes individuals that are involved in and knowledgeable about the technical details of the project. It is also helpful to include people that have a background in communication, education or community relations. Be mindful that public opinion will be influenced by who conducts outreach efforts.

In addition to the outreach team, there will be a wide range of people associated with the project who interact with the public. These might include:

- Community champion / Local Energy Committee
- Building owners
- Representatives of the developer
- Technical service providers
- Town officials / Local government
- Key decision-makers

The outreach team is responsible for coordinating with other people who provide a public face to the project so that the information conveyed is consistent and correct.

TAKE YOUR OUTREACH TO SOCIAL MEDIA – ESPECIALLY SOCIAL NETWORKS

Social networks are the new virtual water coolers, post offices, and cafes where people socialize. The good thing is that you do not need to go to every office tower or rural post office and drink unhealthy levels of caffeine to reach the 100 million people on social networks. Facebook pages and communities that have an interest in your issues already exist (if you do not already have your own organizational presence). You just need to do a little legwork to track them down. The same goes for bloggers. They are most often looking for news and content to share with their followers and are only too happy to spread the word about your initiative. Social networks like Facebook also allow you to undertake highly segmented advertising campaigns because every user has a profile. Age, gender, and geography can all be segmented. Affiliation with interests or pages can also be segmented. You can create ads that directly reach your audiences for a matter of cents. Think of ad options on Google or even YouTube. They are cost effective for modest budgets. Do a Twitter search on your organization’s top issues or name. What comes up?

Don’t ignore social media and social networks in your outreach strategy.

Do consider creating messages and targeting participants in social networks and investigate the power of cost effective advertising using these media.
IDENTIFY KEY STAKEHOLDERS

Stakeholders are individuals and groups who believe they are affected by the decisions regarding the biomass energy project. Identifying your key stakeholders will inform the development of your outreach strategies and communication plans. For more detailed information about stakeholders, see Appendix 2.

Possible stakeholders include:

- Neighbors
- Officials
- Regulators
- Business leaders / Interests
- Civic / Citizens groups
- Environmental groups
- Senior citizens
- Religious groups
- Educators
- Forest managers/landowners and wood products business owners

TIP: Pay attention to other biomass energy projects taking place around the country. Reading news stories about other projects will help to identify relevant stakeholder groups for your project.

UNDERSTAND YOUR STAKEHOLDERS

Once you have identified who the key stakeholders are, it is important to learn about their existing perceptions of biomass energy. This will help you to understand what perceptions will influence opinions about the proposed project. Outreach presentations should be responsive to what you learn about existing community perceptions, concerns and perceived benefits of biomass energy. Outreach team members may already have an idea of these perceptions, but it is important to confirm them before conducting outreach.

To get a better understanding of your key stakeholder groups, you may be able gather information from readily available sources such as websites, local news reporting, blogs and opinion papers. You may then want to schedule informal conversations, interviews, focus groups or small interactive briefings with stakeholders to get a better understanding of their perceptions.
If there is a group of interested citizens that want to invest time in the project, you can develop a citizen task force or citizen advisory panel to provide ongoing feedback and potentially become a source of communication.

**TIP:** Really listen to concerns being raised and wait 24 hours before responding to criticism and concerns. This will usually lead to a better understanding of the concerns and a more effective response.
BIOMASS PUBLIC OUTREACH CASE STUDY 1

This Case Study was developed with the help of Ian Raymond, a NH business owner and active member of the local energy committee.

A Local Energy Committee member learned about biomass at a conference. He used the Biomass Energy Resource Center website and their publications to learn more and thought that biomass would probably make a lot of sense at the district school campus. He started by convincing the superintendent to conduct an energy audit with an energy service company. That led to several years of petitions, meetings, votes and financing for a biomass energy project. At the final vote, 96% of voters voted in favor of the project.

Obstacle: Overburdened superintendent  
Solution: Provided support

Obstacle: Fuel oil prices plummeted in the middle of the process  
Solution: Identified additional financing sources

Obstacle: Voters who say “no” to everything proposed  
Solution: Compelling argument, knowledge of legal and technical details

Obstacle: Concerns that the woodchip delivery trucks would tear up the pavement  
Solution: Trucks are not significantly heavier than school buses and trash trucks and there would be only 1-2 deliveries per week during the heating season

Obstacle: Concern that they would need to hire a full-time person to operate the system  
Solution: Brought another operator to a presentation that said it took him only 15 minutes per day and it was significantly less burdensome than the existing fuel oil system

TOOLS /STRATEGIES

- Created compelling presentations that clearly showed the benefits of the project
- Set up a website about the project: http://www.winnisquambiomass.com/
- The energy committee had presentations from the other towns’ energy committees
- Several open meetings at the school to discuss the project and answer questions
- Brought other NH school facility operators to some of the meetings to talk about their experiences (and to address concerns of community members)
- Brought the school board and finance committee on a tour of existing facilities
An effective outreach program will support each step of the biomass project. It is important to engage the public before each of these major steps. Proactive public outreach is far more effective than reacting or responding to public response to something that has already happened. The table below outlines the common steps in the development of a biomass project and the Public Outreach activities that are matched with each step.

<table>
<thead>
<tr>
<th>COMMON STEPS IN PROJECT DEVELOPMENT</th>
<th>PUBLIC OUTREACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDENTIFY OPPORTUNITY &amp; DEVELOP OUTREACH TEAM</td>
<td>Public Education (per Part 1 of this guide).</td>
</tr>
<tr>
<td>A community member, business owner, staff member or other interested party identifies a building or cluster of buildings that could utilize a biomass energy system. Put together outreach team and identify funding sources for a pre-feasibility study.</td>
<td></td>
</tr>
<tr>
<td>PRE-FEASIBILITY STUDY</td>
<td></td>
</tr>
<tr>
<td>Involves a preliminary analysis of a project idea to check whether it is viable. This is a basic assessment, not yet at the engineering level, to determine the project’s apparent cost effectiveness, what prospects for biomass energy production appear worth studying further, and what key issues need resolving for successful design and implementation. Public engagement is important at this beginning stage so that community members can feel involved in the process.</td>
<td>Announce when the firm has been selected to do the pre-feasibility study and when results are expected; have firm present findings of pre-feasibility study at meeting open to the public.</td>
</tr>
<tr>
<td>FEASIBILITY STUDY</td>
<td></td>
</tr>
<tr>
<td>Generally addresses identification of anchor loads and quantification of their energy requirements, potential location of the biomass district heating plant, identification of smaller loads on route connecting the biomass plant to the anchor loads, GIS mapping of loads, preliminary cost estimation, and cash flow analysis. It may also identify the potential and feasibility of combined heat and power (CHP). Successful public engagement should aim to address all community concerns by this stage.</td>
<td>Announce the award and timing of the feasibility study; work with feasibility study provider to address community concerns/issues in the study; have firm present findings at a meeting open to the public.</td>
</tr>
<tr>
<td>IDENTIFY FUNDING</td>
<td>General public education on the benefits of the project (with a focus on the financial benefits, payback period,</td>
</tr>
<tr>
<td>Funding is often provided by the beneficiaries of a biomass project through private financing or bonding. However, other sources of funding may also be available.</td>
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Showing how a project will be funded can sometimes help community members embrace a project. If the public needs to vote to approve funding for the project it is very important to do another round of public education, highlighting the benefits of the project, before it goes to a vote. (See sections on outreach strategy and key messages below).

<table>
<thead>
<tr>
<th>IDENTIFY DEVELOPER</th>
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<tbody>
<tr>
<td>This selection process can be done through an RFP or RFQ process and the community will select the required engineers and vendors based on the response to this process. The selected bidder will be fully responsible for the design, installation, and performance of the equipment it supplies and installs. This should be a public process that the community is aware of.</td>
</tr>
</tbody>
</table>

Keep public up to date on the process and timeline. Be transparent about who submitted proposals and why a developer was selected.

<table>
<thead>
<tr>
<th>BOND VOTE</th>
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<tbody>
<tr>
<td>After funding has been identified, this step asks community members to approve the funding plan, which could be a bond or a grant application.</td>
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</table>

Review the benefits of the project and focus on the financial benefits and payback period. Address potential questions and concerns about tax burden and the overall budget. See Appendix 7 for an example of outreach before a bond vote.

<table>
<thead>
<tr>
<th>DESIGN &amp; PERMITTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-depth and detailed assessment that generates a specific project design and full engineering to prepare for construction. Identification and completion of all necessary permit applications to secure all permits for construction and operation of the biomass system. Certain permits have mandatory public comment periods in which the public can weigh in on the project.</td>
</tr>
</tbody>
</table>

Make design documents available to the public. Make sure to understand public issues and concerns that will likely come out during the public comment period in the permitting process. When possible engage and address these concerns before applying for the permit.

<table>
<thead>
<tr>
<th>CONSTRUCTION AND OPERATIONS</th>
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<tbody>
<tr>
<td>Contracting and overseeing construction of the system and ensuring successful completion and operating capacity.</td>
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</table>

Keep the public up to date on the schedule of the project; announce milestones, ribbon cutting, etc.

<table>
<thead>
<tr>
<th>COMMISSIONING</th>
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<tbody>
<tr>
<td>Testing the system to ensure that performance meets expectations.</td>
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</table>

Once the biomass facility is up and running, consider hosting a facility tour.
OUTREACH AND PERMITTING REQUIREMENTS

Make sure you understand the full range of regulatory permits and approvals that are required for the biomass project and plan for public education before each of these approval points.

Permitting requirements will be state, and potentially city, specific. They are likely to include:

- A land use permit (where the proposed facility is located)
- Building permit (for the construction of the facility)
- Air quality permit (emissions)
- Environmental assessment

Other potential permit requirements include:

- Certificate of Public Good
- Zoning
- Storm Water Permit
- Transportation (for truck traffic delivering woodchips)
- Brownfield (if site is located on a brownfield)
- Historic Preservation (if site is in a designated historic district)

Many permitting processes provide well defined roles for project opponents. When you are putting together a list of permitting requirements, find out which ones allow feedback from community members. Reach out to potential opponents early and often in the process to understand their concerns so that you can address them.
Biomass Public Outreach Case Study 2

This case study was developed with the help of Mike Kowalski, active member of the Barnstead Development Group.

The Barnstead Development Group (in Barnstead, NH) initiated a district energy project that would use the steam from a biomass cogeneration plant at a nearby sawmill to heat the town center, offering “bypass steam” to interested residential and commercial users. The goal of the project was to replace fossil fuel used for heat with a local and sustainable fuel source. Although the project has not come to fruition (the biomass plant is not currently running), the non-profit committee was successful in getting the project into the Town’s Capital Improvement Program (CIP) which provides municipal budgeting for capital projects associated with the Town Plan.

Lessons Learned: Steps for Getting the Project on the CIP

1. **Lots of volunteer hours.** The project was developed by an all-volunteer group and the lead player on the biomass project estimates spending 1,000 hours on the project.
2. **Volunteered engineering services.** The group was able to obtain preliminary engineering work from a regional engineer who provided the work for free with the understanding that if/when the project moved forward he would be selected to do the engineering. This provided the group with drawings and calculations of the proposed system that could be shared with community members and decision-makers.
3. **Relationship with existing district energy steam provider.** The group worked closely with Concord Steam to learn about how to design and run a district energy project. They made site visits and gathered stories of their experience to share with community members and decision-makers. They were able to use Concord Steam’s experience to develop pricing estimates.
4. **Support from town leaders (Planning Board, Select Board, Budget Committee).** The group made repeated visits to town leaders to present the project, budget and proposed savings.
5. **Public education.** The group held meetings about the project that were open to the public. Meeting times and agendas were advertised in the local paper. While the meetings did not have large turnouts, they provided an opportunity for people with questions and concerns to come and learn more.

Common Questions from the Public:

**Question:** What will it cost to retrofit my home to connect to the district system (burning oil and forced)?
**Answer:** We had estimates based upon sizes of home, cost to convert and whether funding would be available.

**Question:** How reliable will the steam heat be?
**Answer:** The plant is designed for two full-size boilers for fully redundant capacity (if one boiler stops working, the second boiler will come on automatically. Home owners and businesses will never know.)
DEVELOP AN OUTREACH STRATEGY

The outreach strategy creates an outreach approach that is tailored to the needs and concerns of the project stakeholders and the larger community. The strategy should inform the overall plan to manage and monitor public education and outreach throughout the duration of the project (from feasibility assessment to commissioning).

THE OUTREACH STRATEGY WILL INCLUDE:

- Outreach objectives
- Outreach tasks
- Events that coincide with project milestones
- Timeline for outreach and education activities
- Roles and responsibilities for producing material and managing events
- Key stakeholders
- Key messages
- Communications plan – the communications plan focuses on representing the project directly to the public and through the media. It should include
  - Plans for everyday communication
  - High visibility communication (at project milestones)

THE OUTREACH STRATEGY SHOULD ALLOW STAKEHOLDERS TO:

- Learn how the biomass energy project works
- Learn about the potential environmental benefits of the biomass energy project
- Learn about the potential financial benefits of the biomass energy project
- Learn about the specific biomass project early in its development and how it will meet community energy goals
- Express their views (including concerns) to project leaders
- Form relationships with project team members
- Proactively and constructively address their concerns
DEVELOP KEY MESSAGES

Identify a set of key messages that can be consistently repeated in outreach activities and materials to help stakeholders develop a clear understanding of the project and how their concerns will be addressed. While some key messages might be appropriate across most biomass projects, you will need to determine which messages are most appropriate to your project. These messages should clearly state the benefits of the project to the community and address known concerns of stakeholders.

MESSAGES SHOULD INCLUDE INFORMATION ABOUT THE SPECIFIC PROJECT:

- An overview of the project
- Information about the developer / contractor
- Economic and environmental benefits of the specific project
- Proven biomass technology
- Efficiency of the proposed system
- Emissions information (compare to other similar scale projects, compare to residential wood stoves, compare to permit limits)

COMMON PERCEPTION ISSUES FACED BY BIOMASS PROJECTS INCLUDE:

- Local emissions
- Global emissions
- Pitting one renewable against one another (biomass vs. solar, efficiency, etc.)
- Truck traffic
- Noise
- Property values
- Forest sustainability and feedstock sustainability with existing industries
- Competition for feedstock
- Cost
- Developers are from outside the community, “from away.”

ISSUE: TRAFFIC

When developing the McNeil Generating Plant (a woodchip fired electricity generation plant) in Burlington, Vermont, truck traffic was a major concern of the community.

SOLUTION:

In order to address the concern about truck traffic, the project developers agreed to have 75% of the woodchips delivered by train – this resulted in a major reduction of projected truck trips required to serve the plant.

ISSUE: DUST

The train cars serving the plant were designed to unload chips from the bottom. Once the plant was up and running, operators and neighbors found that releasing the chips generated a lot of dust. Neighbors of the plant were very unhappy with the amount of dust that was coming from the plant and felt it was negatively impacting the community.

SOLUTION:

To address this concern, the developer invested in an enclosure where the chips get dropped, eliminating the majority of the dust being dispersed into the air.
ISSUE: EMISSIONS

Biomass emissions are the most common concern raised by community members – and this is an issue that can effectively stop a biomass project. In one case, a parent of a student with asthma was successful in fighting a biomass project that had both community and school board support. The fact is that even though emissions from biomass systems are quite low, they are still increasing the amount of particulate matter in the air. These systems are all in compliance with EPA air quality standards but that is not the same as having zero emissions. Following best practices for reducing emissions levels (see Appendix 1) will minimize emissions and reduce the impacts of heating with wood on human health.

POTENTIAL RESPONSES TO EMISSIONS CONCERNS:

Experience. Vermont schools have had biomass heat for over 20 years (with thousands and thousands of students passing through them) and there has been no indication that these systems have impacted student health either statistically or anecdotally (e.g. Not a single parent has a story to tell about how the biomass system has negatively impacted their child’s health.)

Wood stoves. Many people use wood stoves at their homes. A heating plant of a 200,000 square foot wood-heated school in a cold northern climate produces about the same amount of particulate matter as five residential-scale wood stoves.

Best Practices for Reducing Emissions. There are standards and recommendations for reducing emissions through Fuel Selection, Boiler Selection, Use of Thermal Storage, Best Management Practices (BMPs), Emissions-Control Equipment, Stack Sizing and Plant Location. Be sure that you can communicate how the project will incorporate the information and tools available for reducing emissions.

POTENTIAL “GENERIC” MESSAGES TO USE IN EDUCATING THE PUBLIC:

EMISSIONS:

- Modern community-scale woody biomass systems burn cleanly and can meet all state and federal emissions standards.
- Carbon dioxide (CO2) released from combustion is a greenhouse gas. Fossil fuel combustion takes carbon that was locked away underground (as coal, crude oil or gas) and transfers it to the atmosphere as CO2. When wood is burned, it recycles carbon’s “biogenic” that was already in the natural carbon cycle. Consequently the net effect of burning wood fuel is that little or no new CO2 is added to the atmosphere if the biomass is sustainably harvested. Climate mitigation efforts are improved if the biomass is replacing the use of fossil fuels.
- Best Available Control Technologies (BACT) for air quality ensures that biomass systems easily meet air quality standards.
FOREST SUSTAINABILITY:

- Sustainable harvesting of biomass is a key component of maintaining forest health, reducing forest fire impacts, and maintaining working forestlands.
- Sustainably harvested biomass is a local renewable energy source that keeps energy dollars circulating in the local economy by creating markets for low-grade wood, adding economic vitality and jobs to the forest-products industry and improving the health of our forests.

COST:

- Biomass energy projects help communities to use their local wood-energy resources to provide affordable heat to schools, town buildings, campuses and neighborhoods.

GENERAL CONCERNS:

- This project will help to meet energy goals (see sample community energy goals on page 11) of the community by:
  - Reducing greenhouse gases
  - Lowering energy costs
  - Providing energy independence from international supply disruptions and price fluctuations
  - Increasing the amount of energy used from non-fossil fuel sources
  - Creating jobs (construction, operations, forestry-related)
  - Investing in the local economy during construction
  - Improving energy efficiency
  - Improving the reliability of the community’s energy

TIP: Use a graph or chart to compare greenhouse gas emissions with biomass vs. traditional fossil fuel system.
This Case Study was developed with the help of Eric Kingsley of Innovative Natural Resource Solutions.

A mid-sized (campus-level) biomass thermal project was proposed in a rural area with a long history of forestry and a strong wood products industry. There is a thriving local pulp paper mill that currently acts as the economic engine with 800 manufacturing-wage jobs, in an otherwise depressed area. The pulp mill currently purchases 1 million tons of woodchips annually. The proposed biomass project would require 30,000 tons of woodchips annually.

ISSUE:

The mill believes that a new buyer in the local wood marketplace will cause the market to behave erratically, disrupting the supply chain and causing significant price swings. Members of the community voiced concern that the biomass project would “steal” wood from the mill, making it less competitive and putting existing jobs at risk. The developer acted as if there were no issue, conducting a study showing that there was plenty of wood available in the surrounding forest for the new project without threatening sustainability.

The developer was not listening to the community and met with the mill to tell them, “they don’t understand the market.” The project was facing major opposition.

SOLUTION:

A consultant was brought in to help the developer to focus on the real point of conflict. The concerns being raised were not about the availability of wood but about pricing and how the needs of the biomass project might affect pricing for the mill. The project developers created a new resolution: Hire the mill to procure the woodchips need for the biomass project. This allows the mill to add a service, and removes the risk of having a new player in the market. The mill becomes a direct beneficiary of the biomass project and a vocal proponent.

(This project is still underway - the outcome of the proposed solution is unknown.)
After determining who the stakeholders are, creating a timeline and a message, you will need to decide what types of outreach make sense for each stakeholder. You will reach a greater number of community members if you use a variety of tools, including:

- Mailings
- Fact sheets
- Flyers at appropriate posting locations
- Public meetings
- Workshops and conferences
- Focus groups
- Press release (Newspaper, Magazine, Radio, TV)
- Online (Project website, community web forums, social media)
- Field trips
- Phone calls
- Going door-to-door
- Information tables at events or high trafficked places like the grocery store or community events
- Site visits: Inviting stakeholders to visit an existing biomass project can provide an excellent opportunity to show stakeholders how the technology works, and provide opportunities for key questions to be answered and misunderstandings to be clarified. People who attend site visits should have an opportunity to ask questions of the host site, gathering answers from a party independent from your project.

See Appendix 4 for more information on outreach tools.

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TAILOR OUTREACH MATERIALS TO YOUR AUDIENCE(S)

The development of outreach materials and use of tools should consider the intended audience. The amount of information and level of technical detail provided must be tailored to match the audience's degree of interest, education and time constraints. When choosing tools, it is important to consider which tool will allow you to connect most easily with your stakeholders, what will get you to your goals, and what is feasible from a time and resources perspective. While a website or a video might seem like the perfect approach for your audience and objectives, those activities might be very expensive. Fact sheets, brochures and web pages that already exist may save time and money. Make sure you have time built into the outreach plan to develop materials and have them reviewed by the required parties (developer, technical consultants, etc.) before the outreach event is scheduled to take place.

In some instances, stakeholders may need to hear the same information more than once and in different formats in order to gain an understanding of the subject matter. Having multiple types of materials available will provide flexibility to use different options, depending on the makeup and interests of the audience.

All materials should be readily understandable, jargon-free, and contain information that is technically accurate and addresses common questions and/or concerns.

You may want to work with the technical consultants on the project to gather technical input on outreach material.

USE ACTIVE OUTREACH STRATEGIES THAT ARE ENGAGING AND INTERACTIVE

Forum organizers often rely on passive outreach strategies like flyers, meeting notices and press releases that present information without ever engaging the people they hope to recruit. These printed materials can be useful to raise awareness about an event, but they are not the best way to convince someone to participate. Personal interaction—in person or over the phone—creates a stronger connection with people and increases an organizer’s ability to convey the importance of an event. Salesmen and campaigners have known this principle for years. Selling products and winning votes are best accomplished by knocking on doors and making phone calls. Get out there and talk to people.

Don’t build your outreach strategy around flyers, newspaper listings and email blasts.

Do recruit volunteers and ambassadors to get out and talk to people, organize phone banks, make presentations and speeches, and set up tables at highly trafficked events.

HIGH QUALITY OUTREACH MATERIAL SHOULD:

- Relate specifically to the interests of the community
- Be easy to read and understand
RELATE TO PEOPLE’S LIVES BY CRAFTING YOUR MESSAGE CAREFULLY

People do not use or relate to the language most often used by policy experts and government bureaucrats. When naming your forum, writing your outreach materials, and crafting your talking points, consider how your topic directly impacts people’s lives. How do people talk about the issue and why do they care about it? Is different language or customized messaging necessary for specific audiences within your community? Language matters. Take the time to test your messages to make sure you get it right.

TOPICS COVERED BY OUTREACH MATERIAL COULD INCLUDE:

- An overview of the project
- Information about the developer / contractor
- Economic benefits of the specific project
- Jobs and income to be created
  - Operations and maintenance jobs to be created
  - Forestry jobs to be supported/created
  - Money that will be invested in the community/region during construction
  - Availability of lower cost energy
- Environmental benefits of the specific project
  - Reduction in greenhouse gas emissions
  - Healthy forests
- Why use biomass fuels
- Proven biomass technology
- Environmental benefits of biomass energy
- Economic benefits of biomass energy
- Efficiency of the proposed system
- Emissions information (compare to other similar scale projects, compare to residential wood stoves, compare to permit limits)
BIOMASS PUBLIC OUTREACH CASE STUDY 4

This Case Study was developed with the help of Eric Kingsley of Innovative Natural Resource Solutions.

ISSUE:

A wood-fired boiler was proposed at a New England Elementary School. Community members felt that the particulate matter (PM) emissions were too high for such a sensitive population (children). People opposing the project brought up every possible concern associated with biomass heating to bolster opposition to the project.

SOLUTION:

The developer agreed to fund an independent review of project emissions. When the review was complete, it found that there were legitimate concerns regarding local emissions.

Based on these findings, the developer modified the technology and scale of the project. The changes made by the developer led to a reduction in the amount of PM emissions. Once this change had been made, all other opposition to the project faded. The real concern had been about particulate matter emissions.

The developer acted as a partner with the community. They listened to concerns, acted (funded emissions study) and addressed the issue. These changes made the project less profitable, but without them, the project would never have been completed.
OUTREACH THROUGHOUT PROJECT LIFESPAN

Outreach should be actively managed to ensure that consistent messages are being communicated, requests for information are being answered, and concerns are being addressed. The best way to do this is with an outreach leader who is supported by the outreach team. As the biomass project progresses, public perception will be influenced by the extent to which the project and project team are well coordinated and responsive.

SEEK OUTREACH OPPORTUNITIES

The outreach team needs to actively seek out opportunities to engage stakeholders (sharing information and soliciting input cannot be done passively) and engage the media. Some stakeholders may be skeptical that the project developer will provide accurate information. It is crucial that you present unbiased, accurate information and seek opportunities to partner with spokespeople in the community who already have the trust of the public.

COMMUNICATE FREQUENTLY

Frequent communication with stakeholders can help to convey technical information (to keep stakeholders in the loop as the project is designed and constructed) and acts as a vehicle for keeping the project team aware of the community’s views and concerns about the project.

MONITOR COMMUNITY PERCEPTION

By monitoring the performance of outreach activities, the project team can stay abreast of how the community perceives the project and gauge the effectiveness of outreach activities. This can help to identify concerns and possible misperceptions about the project and adapt future outreach strategies to address them.

You can monitor through informal phone calls or in-person meetings with some of the key stakeholders who are likely to have interaction with the larger public and/or groups who may have concerns about the project. A website that discusses the project can provide a platform for public interaction as can other social media (e.g. Blogs, Facebook and Twitter).

BE FLEXIBLE

While it is important to plan your outreach strategy, it is just as important to be able to adapt to changes in the project or community concerns. Be sure to build in opportunities to gather feedback and concerns throughout the project and use this feedback to tailor future outreach activities. All external communication (including outreach activities, materials and press communications) should be updated as needed to reflect project progress and active community concerns. You may also update your outreach strategies or vehicles as you learn.
what works best for different stakeholder groups. If a situation arises when a concern cannot immediately be addressed, the outreach team should be prepared to explain why.

FIND TECHNICAL RESOURCES

It is important to engage technical experts who are fully vetted (have a good track record) and do not have a stake in the project (e.g. a vendor selling biomass equipment cannot be trusted by the community to give the best information.).

OUTSIDE CONSULTANTS CAN HAVE MORE CREDIBILITY

One community member was an expert, but had a harder time gaining credibility as an inside community member. As a result, it is useful to engage a paid consultant to confirm his ideas.

CONCLUSION

When public outreach is done well, it results in projects that meet community needs, minimize adverse impacts, and receive community support. Education gained through public outreach about biomass may lead to further adoption and a willingness to consider alternative solutions to a wide range of community issues in the future.
The Appendices include additional information, outreach tools, resources and templates that are specifically geared toward a biomass outreach and education campaign. ‘Biomass Resources’ includes links to general resources, biomass glossaries, fact sheets, case studies, and information about engaging the community. Potential stakeholders are described in detail in ‘Who are the Stakeholders?’ ‘Commonly Asked Questions” is a collection of biomass energy questions and answers, and links to additional information. ‘Outreach Tools’ includes descriptions and tips for suggested methods of outreach. The ‘Education Plan Template’ is a worksheet that can serve as a guide to create an outreach team, identify stakeholders, and plan for potential outreach events. ‘Working with the News Media’ is a short primer on types of media and the importance of working with the news media. The District Heat Bond Vote Article shows an example of how the City of Montpelier in Vermont provided information to the community before an important vote. These resources are included as a guide and may be modified for your own specific needs.
APPENDIX 1: BIOMASS RESOURCES

There are a variety of places to gather information about biomass energy use and projects. Review multiple sources and select information that is best suited to the kind of project you are proposing. Make sure you have completely read any material you plan to use and are comfortable with the information being provided. Always provide a reference for where material was sourced.

GENERAL RESOURCES

- Sustainable Forest Biomass Energy: Connecting Forest and Communities – Issues and Opportunities  
- National Network of Forest Practitioners: Website on community scale biomass  
- Wood Education and Resource Center (WERC):  
- National Association of Conservation Districts: Woody Biomass Desk Guide and Toolkit:  
  [http://www.nacdnet.org/resources/guides/biomass/](http://www.nacdnet.org/resources/guides/biomass/)
- Wood to Energy: An Outreach Program for Utilizing Interface Fuels for Bioenergy Outreach Program: Biomass Ambassadors Guide:  
- Best Practices for: Public Outreach and Education for Carbon Storage Projects:  

BIOMASS GLOSSARIES

Biomass Energy Resource Center (BERC) [Glossary](#)


The New District Energy: Building Blocks for Sustainable Community Development - [Glossary](#)
FACT SHEETS


- Electricity Production: Comparing Wood and Fossil Fuel Feedstocks
- Woody Biomass Basics
- Agricultural Biomass
- Implications of using Woody Biomass for Energy and other Products
- State and Local Policies and Incentives to Produce and Use Woody Biomass
- Financing a Bioenergy Project
- Common Concerns


- An Invitation to Explore Possibilities
- Common Concerns
- Comparing Wood and Fossil Fuels
- Climate Change and Carbon
- Environmental Impacts
- Impacts on Air Quality
- Sustainable Forest Management
- Sources and Supply
- Economic Impacts of Generating Electricity
- Federal Policies and Incentives
- Financing Woody Biomass Facilities
- Small Heating Units
- Systems that Convert Wood into Energy
- Using Wood Fuels in Existing Coal-Fired Power Plants
- Heat and Power Applications

**CASE STUDIES**

The Biomass Energy Resource Center (BERC) has developed a series of case studies illustrating the development and operational experiences of various community-scale facilities that employ biomass systems. [http://www.biomasscenter.org/resources/case-studies.html](http://www.biomasscenter.org/resources/case-studies.html)

The Property & Environment Research Center (PERC) has developed a case study of Vermont’s success implementing woody biomass heating systems by Steven Bick. [http://www.perc.org/files/Woody%20Biomass%20CS%20Final.pdf](http://www.perc.org/files/Woody%20Biomass%20CS%20Final.pdf)


**ENGAGING THE COMMUNITY - WHAT: FACTS, MYTHS, MESSAGE, BENEFITS, OBSTACLES**


Wood to Energy: An Outreach Program for Utilizing Interface Fuels for Bioenergy Outreach
Program: Biomass Ambassadors Guide: http://www.interfacesouth.org/products/wood-to-
energy/biomass-ambassador-guide/outreach-guide/Outreach_Tools.pdf

National Association of Conservation Districts: Woody Biomass Desk Guide and Toolkit:
http://www.nacdnet.org/resources/guides/biomass/

EIA: http://www.eia.doe.gov/kids/energy.cfm?page=biomass_home-basics


United States Forest Service: http://www.fs.fed.us/woodybiomass/

WERC: http://na.fs.fed.us/werc/biomass/index.shtm

Forest Products Laboratory: http://www.fpl.fs.fed.us/research/units/ tmu/tmuatwork.shtml

ENGAGING THE COMMUNITY - TOOLS AVAILABLE

National Association of Conservation Districts: Woody Biomass Desk Guide and Toolkit:
http://www.nacdnet.org/resources/guides/biomass

Best Practices for: Public Outreach and Education for Carbon Storage Projects:

Wood to Energy: An Outreach Program for Utilizing Interface Fuels for Bioenergy Outreach
Program: Biomass Ambassadors Guide: http://www.interfacesouth.org/products/wood-to-
energy
APPENDIX 2: WHO ARE THE StakeHOLDERS?

Neighbors

These are the individuals most likely to be directly impacted by the project. Identify neighbors along transportation routes for woodchip delivery and/or for whom site activities will be visible. Open communication with neighbors ensures they have an opportunity to learn what steps are involved in a project and to voice any questions or concerns. Remember, if the project has “public” neighbors like a school or church, every person that accesses the community facility becomes a project neighbor.

Officials

Individuals at the local, regional, state, or national level who represent the community, or who have special interest in energy and/or climate change, the economy, or the environment. This may include elected or appointed individuals, individuals serving in volunteer capacities, executive boards, and others. Your State Forester is one official that has a deep interest in the use of woody biomass energy. Officials will be especially sensitive to activities that may affect their constituents and will want to be informed beforehand so that they can answer any questions raised. Insight into how the community makes official decisions, how it is governed, and how it relates to surrounding communities can help a biomass energy project proceed smoothly. Some officials may have a strong influence on a project, even if their explicit permission is not required to move ahead with the project. For example, the Commissioner of Public Health may not have jurisdictional authority over a project but may have a leadership role if something goes wrong and therefore may have a strong opinion about the project from the outset. Thus, it is prudent to try to identify and work with officials who may become involved as well as those with direct responsibilities.

Regulators

Some regulators will be directly involved in approving and permitting the construction of the biomass project. However, other regulatory agencies may have authority to review the project or may govern other aspects of a project. For example, regulatory officials in charge of land management, fisheries and wildlife, water, solid waste, air emissions, or other areas of jurisdiction could have a permitting and oversight role. Permits may also require a review for potential impacts on coastal zones, historic sites, and other protected features.

Business Leaders / Interests

Economic development professionals may be elected or appointed officials and could also hold volunteer or non-governmental posts. Business groups in a community may be quite interested in a biomass energy project. This interest can range from a broad
interest in long-term community development to contracting opportunities and/or concerns about secondary impacts on their businesses. There may well be synergistic relationships with the local business community, particularly if the area supports other forestry activity.

**Civic / Citizens Groups**

Even small communities can house hundreds of non-profit civic groups. Although some of these groups will have no interest in a biomass energy project, many will and can provide a vehicle for communicating with members of the community and learning about their concerns. These groups can range from a local energy committee to rotary clubs (with many in-between).

**Environmental Groups**

Both local and national/international environmental groups have expressed interest in biomass energy projects. At either the national or local level, it is common to find environmental groups that offer support for biomass energy because of its potential role in addressing climate change, as well as some groups that oppose the technology out of concern about harvesting and emissions factors.

**Senior Citizens**

Increasingly, senior groups are becoming involved in local issues and the national climate change debate. The views held by seniors’ organizations can vary as much as any other segment of the community. Their interest in serving as community guardians can range from activism in environmental protection to monitoring the size and role of government.

**Religious Groups**

In some communities, the strong social networks of religious groups provide a means for information exchange. Many religious groups have an environmental stewardship focus within which to promote reduced GHG emissions and reduced impact on the environment.

**Educators**

Educators are key disseminators of information in a community. They often serve as a conduit for current events and have the opportunity to interact with multiple stakeholder groups. They can also provide information specifically related to biomass energy or to a particular local project once they become informed on these subjects.

**Forest managers/landowners and wood products business owners**

These are the people who may have wood supply for a biomass project. Engaging these potential suppliers could help with supply later on.
WHAT ARE COMMON CONCERNS AROUND BIOMASS?
There are a variety of concerns and solutions, but sustaining local forests and air quality are two of the most significant concerns. This is why community participation and input is important. Citizen priorities can be addressed by including their input in the local energy plan. From: http://www.nacdnet.org/resources/guides/biomass/

HOW DOES WOOD COMPARE TO FOSSIL FUELS?
When sustainably harvested, wood fuel has several environmental advantages over fossil fuel. The main advantage is that wood is a renewable resource, offering a sustainable, dependable supply. Wood fuel contains minimal amounts of sulfur and heavy metals. It is not a threat to acid rain pollution, and particulate emissions are controllable. The principle economic advantage of wood biomass energy is that wood is usually significantly less expensive than competing fossil fuels. From: http://www.fpl.fs.fed.us/documnts/techline/wood-biomass-for-energy.pdf

HOW DOES BIOMASS ENERGY IMPACT CLIMATE CHANGE AND CARBON?
According to the U.S. Environmental Protection Agency (EPA), biomass energy does not increase carbon in the atmosphere when it is managed sustainably. Increasing levels of carbon in the atmosphere is a concern because of potential climate change impacts. One of the chief sources of increasing carbon in the atmosphere is fossil fuel combustion (anthropogenic carbon). This carbon is released from storage deep in the Earth and is reintroduced into the natural carbon cycle, where it accumulates. Carbon from the combustion of biomass (biogenic carbon) is part of the natural carbon cycle. Rather than accumulating, it is recycled through the atmosphere as carbon is absorbed by growing plants and trees, released through combustion and other uses, and then reabsorbed when plants and trees grow back.

Eventually, carbon dioxide and other greenhouse gases stored in plants and trees is released to the atmosphere through decomposition, wildfires, prescribed fires, or the burning of logging debris. Using biomass for energy captures the energy potential of this biomass as it moves through the natural carbon cycle. From: http://renewablebiomass.org/biomass-q-a-2/

WHAT ARE THE ENVIRONMENTAL IMPACTS OF USING BIOMASS ENERGY?
- Improves air quality, visibility, and public health by reducing the smoke created by open or uncontrolled burning of woody biomass in fires or land clearing
- Reduces the cost of hazardous fuels treatments, which indirectly reduces wildfires. Wildfire prevention enhances or preserves wildlife habitat and watersheds, avoids smoke and fire-related health and safety issues, protects property and recreational values, and avoids the costs of fire suppression and rehabilitation.
- Reduces the cost of healthy forest and range management by providing a market for insect or disease-infested trees, invasive species, and other woody biomass removed.
- Provides renewable fuel for clean energy while saving landfill space, reducing waste, and mitigating the need for additional landfill construction. Bioenergy provides enhanced energy independence, security and reliability, rural economic
development, and a reduction in greenhouse gases and other pollutants associated with fossil fuels.

- Lowers greenhouse gas emissions over fossil fuels, because the carbon dioxide released when woody biomass is burned is balanced out by new, carbon-sequestering biomass growing in its place. Durable wood products from biomass continue to store carbon absorbed by trees when they were growing. From: http://www.forestsandrangelands.gov/Woody_Biomass/benefits.shtml

WHAT ARE THE IMPACTS ON AIR QUALITY? WILL THE SYSTEM PRODUCE AIRBORNE WOOD ASH THAT WILL FALL OVER THE NEIGHBORHOOD?

No. A well-designed wood energy system has a high combustion efficiency, resulting in a small percentage of residual ash (about one percent of the original fuel volume). Modern wood combustion units used in concert with thermal storage systems, appropriate emission control systems, and correct chimney construction result in particulate emissions below current state and Federal requirements.

ARE THE WOOD ASHES TOXIC? HOW ARE THEY DISPOSED OF?

Wood ash from institutional and commercial heating plants is not toxic. In fact, it is an excellent soil additive for agricultural use. It can also be spread on athletic fields and gardens or disposed of at a landfill. http://learningstore.uwex.edu/assets/pdfs/A3635.pdf

See your local agricultural extension agent for information about the use of wood ash in your state.

WHAT DOES A WOODCHIP SYSTEM LOOK LIKE? WILL IT MAKE OUR BUILDING LOOK LIKE A SAWMILL OR A FACTORY?

With careful attention to design, the woodchip system will blend in with the building. Biomass heating facilities are similar in their functional parts to those that run on conventional fuels. All require fuel storage capability, a means of moving the fuel from the storage bin to the boiler, a boiler to burn the fuel and extract the useable heat from combustion, and a connection to a chimney to disperse the combustion gases. With woody biomass systems, the boilers are larger and the fuel handling equipment takes up extra space, therefore may require a larger area. Biomass systems also call for a taller stack (chimney) than an oil or gas system. (BERC)

HOW DOES BIOMASS IMPACT FOREST MANAGEMENT? DOES IT DESTROY HABITAT?

Humans have a long history of utilizing forests for sustenance—including food, fuel, shelter, clothing, fences and barriers, weapons, and numerous other uses. As we continue to use wood products, it makes sense to also use the low-grade material and wood residues that are generated to displace fossil fuels for heating. In fact, providing markets for these low-grade materials and residues is a key component of both sustainable management and forest conservation, helping maintain the long-term value of the forest resource. Sustainably produced biomass from forests is a local renewable energy source that keeps energy dollars circulating in the local economy by creating markets for low-grade wood, adding economic vitality and jobs to the forest-products industry, and improving the health of our forests.
Procuring biomass fuel is integrated into harvesting operations that are already occurring; therefore there is no additional impact to the forest. Removing low-quality trees for biomass can actually help forests by opening up space necessary for higher-quality trees to grow faster. Further, without markets for low-quality wood, only high-quality trees are harvested, thereby degrading the forest quality over time. While any forest management plan should consider the resiliency of the particular forest being harvested, some level of management and harvest most often is restorative as opposed to damaging, with short-term impacts minimized and long-term negligible. Some positive impacts include sustaining the local forest products industry, maintaining the value of forested land, and sourcing forest-based products locally rather than putting that burden on more distant forests. ‘Community-scale’ biomass projects that are properly sited and implemented do not put undue strain on forest resources.

Biomass fuel harvesting is nearly always conducted as part of an integrated timber harvest where multiple products (veneer, sawlogs, pulp, and firewood) are removed at the same time. As long as good forest management practices are followed, the biomass fuel harvesting results in no additional impact on wildlife habitat. It is important to note that some harvesting is often prescribed by foresters specifically for enhancing or expanding the habitat of various game and non-game wildlife. Many types of wildlife require open areas created by harvesting and the early successional vegetation that takes over after a harvest. Depending on the forest management objectives, biomass harvesting can in fact contribute to the diversity of wildlife habitat in a forest. Contact your state forestry agency for more about statewide harvesting guidelines.

WHAT ARE THE MOST COMMON SOURCES AND SUPPLY OF WOOD FOR BIOMASS ENERGY?

Domestic biomass resources include wood processing residues from forest industries, urban wood residues, tree and shrub plantations grown for energy, municipal solid wastes and landfill gas, animal wastes and terrestrial and aquatic crops grown solely for energy purposes, known as energy crops.

From: http://www.repp.org/bioenergy/link2.htm

WHAT IS THE LABOR INVOLVED IN BURNING WOOD?

In an automated woodchip or pellet system, the operator never handles the fuel. The wood fuel is loaded into the bin automatically and handled by completely automated equipment in the building. In a semi-automated system, the operator will spend 15-30 additional minutes each day to feed the day bin and remove the residual ash. (BERC)

IS A WOODCHIP SYSTEM NOISY?

As with other heating options, the building occupants usually never hear the woodchip system unless they go into the boiler room.

IS WOOD A DIRTY FUEL THAT WILL MAKE A MESS?

The woodchips are stored in a closed bin and burned in the boiler room, in a sealed combustion chamber. They never get out onto the grounds or into the rest of the building.
WILL BIG TRUCKS BE COMING AND GOING EVERY DAY?

Depending on the season and the size of the building, chip deliveries might be as infrequent as one truckload every two months, or as frequent as two-to-three loads per week. Interviews with system owners indicate that truck traffic for institutional biomass systems is not a significant issue. Generally, the number of deliveries depends largely on the size of the facility and its heating requirements.

IS THERE A DANGER THAT A LARGE STORE OF WOODCHIPS WILL CATCH FIRE?

It is possible for large woodchip piles to spontaneously combust and it has been known to happen on rare occasions. This spontaneous combustion is due to increased temperature within the chip pile as a result of fermentation and decomposition and only happens in very large piles that have been sitting for prolonged periods of time (more than three months). Wood that must be stored for periods longer than three months should be stored in roundwood form and not as piled woodchips. This stored roundwood can then be chipped on demand as needed. http://www.extension.purdue.edu/extmedia/ID/ID-421-W.pdf

HOW STABLE IS THE SUPPLY OF WOODCHIPS?

The answer depends on the region as well as the sizes and types of biomass heating projects that need to be supplied with wood. In many western US states, biomass is readily available in large sustainable volumes as a forest by-product. Various low-quality, small-diameter species must be culled in very large volumes from Western forests to reduce the ‘fuel’ that feeds wildfires. By burning this hazardous material—fuel biomass systems can help prevent and reduce the intensity of fires, while at the same time, promoting the health of commercial timber stands.

In the Northeast, biomass as a by-product is well-spoken for and transitioning from a waste-stream product to a commodity. A gauge to the vitality of this market commodity is the strength of the forest products industry, which provides the infrastructure (loggers, mills, trucks, etc.) required to supply the seasonal heating market. The biomass energy needs of the seasonal heating market can be better met if integrated into the existing market by piggybacking onto a regional anchor such as a pulpmill or cluster of wood-fired facilities. For more information on wood chip supplies in your community contact your State Forestry agency (Appendix 8)

ARE WOODCHIPS AS CLEAN AS GAS OR OIL?

The answer depends on the pollutant to which you are comparing woodchips. Wood has lower sulfur dioxide emissions and net greenhouse gas emissions than both oil and propane; however, particulate matter, carbon monoxide, and total organic compound emissions are higher from wood than oil. Oxides of nitrogen (NOx) emissions from wood are comparable to oil. Volatile organic compounds (VOCs), some of which are produced by combustion, are higher when using wood than when using natural gas or oil, but each fuel emits different VOCs at varying levels and each type has varying reactivity. It is important to note that using the best available control technology and combustion practices, careful siting, appropriate stack (chimney) height, and careful consideration of dispersion patterns will bring emissions well within permissible limits and lessen the impacts of any pollutants emitted when burning biomass. In addition, biomass is considered a carbon neutral fuel when harvested using
sustainable forestry practices, and its use when replacing fossil fuels helps mitigate the effects of climate change. (BERC)

WHAT ARE THE ECONOMIC IMPACTS OF GENERATING ELECTRICITY?
The pay rate is state dependent. In Florida, for the occupational groups that would be impacted by a 40 MW wood-fired power plant, the average annual earnings range from $16,470 (farmworkers and laborers, crop, nursery, and greenhouse occupations) to $99,710 (engineering managers). The average annual earnings of all the impacted occupational groups is $39,083. (Woody Biomass Desk Guide)

WHAT ARE THE HEAT AND POWER APPLICATIONS OF BIOMASS?
Biomass fuels are typically used most efficiently and beneficially when generating both power and heat through CHP. CHP, also known as cogeneration, is the simultaneous production of electricity and heat from a single fuel source, such as biomass/biogas, natural gas, coal, or oil. CHP provides:
- Distributed generation of electrical and/or mechanical power.
- Waste-heat recovery for heating, cooling, or process applications.
- Seamless system integration for a variety of technologies, thermal applications, and fuel types into existing building infrastructure.

CHP is not a single technology, but an integrated energy system that can be modified depending on the needs of the energy end user. The hallmark of all well-designed CHP systems is an increase in the efficiency of fuel use. By using waste heat recovery technology to capture a significant proportion of heat created as a byproduct in electricity generation, CHP systems typically achieve total system efficiencies of 60 to 80 percent for producing electricity and thermal energy. These efficiency gains improve the economics of using biomass fuels, as well as produce other environmental benefits. More than 60 percent of current biomass-powered electricity generation in the United States is in the form of CHP. From: http://epa.gov/chp/documents/biomass_chp_catalog_part1.pdf

WHAT FEDERAL POLICIES AND INCENTIVES ARE THERE AROUND BIOMASS?
Congress passed energy legislation, known as the Energy Independence and Security Act of 2007, which raises standards for vehicle fuel economy and mandate that U.S. transportation fuel include 21 billion gallons of advanced biofuels by 2022 and 2 billion gallons as soon as 2012. The legislation further requires that these advanced biofuels must achieve at least a 50% reduction in life-cycle greenhouse gas emissions. (from: http://www1.eere.energy.gov/biomass/biomass_basics_faqs.html#policies)

WHAT STATE AND LOCAL POLICIES AND INCENTIVES ARE THERE TO PRODUCE AND USE WOODY BIOMASS?
States and local governments have recognized the benefits of utilizing woody biomass. This page provides links to efforts by and opportunities offered by state and local governments to promote the utilization of woody biomass.
- Database of State Incentives for Renewables & Efficiency - Many States have Renewable Portfolio Standards that require a certain percentage of energy used in the state be derived from renewable sources, such as biomass.

• **National Association of Conservation Districts (NACD)** - signed an agreement with DOI and the Forest Service to increase public understanding of the benefits of using wood biomass to reduce fuel buildup on public lands. The NACD uses publications, national and regional conferences, field tours, news media, websites and email methods to reach a broad audience. They have also developed a Speakers Bureau to assist in outreach/education; engaged their natural resource committees and field units in policy and project development; and have led many community efforts in reducing hazardous fuels on thousands of acres in the WUI.

• **National Association of State Foresters** - a non-profit organization that represents the directors of forestry agencies from the fifty states, eight U.S. territories and associated states, and the District of Columbia.

• **The Western Governor’s Association** - an independent, nonprofit organization representing the governors of 19 states and three U.S. island possessions in the Pacific, have endorsed an initiative to promote the development of 30,000 MWs of clean and diversified energy by 2015. This initiative includes an estimated 11,000 MWs of woody biomass utilization.


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**MORE RESOURCES FOR BIOMASS FREQUENTLY ASKED QUESTIONS (FAQS)**


APPENDIX 4: OUTREACH TOOLS

The following descriptions of the suggested outreach tools are based on two books that comprehensive cover many outreach tools for use in the natural resource field: Conservation Education and Outreach Techniques by Susan K. Jacobson, Mallory D. McDuff, and Martha C. Monroe and Communication Skills for Conservation Professionals by Susan K. Jacobson.

**Dear neighbor letter** – Write a friendly letter to local residents to invite them to an upcoming event, introduce the idea of biomass production and utilization, or provide other relevant information. This can be a good way to reach your audience if you have postal or e-mail addresses for them. To save postage, this letter can also be sent by e-mail. But remember that while most people have access to the Internet in their homes or public libraries, a portion of the population cannot be reached this way.

**Media opportunities** – Use the mass media to communicate with the public through an article, a series of articles, a radio/television interview, or a news story. This can be a great way to reach a broad spectrum of people with general information and few details. Send a news release to the local newspapers, television stations, or radio stations and talk with editors and reporters about covering the issue of biomass production and utilization. You can also use the media to publicize an upcoming outreach event. See the appendix for a sample press release.

**Newsletters** – Write articles for newsletters published by local organizations such as environmental groups (make sure you know their stance on bioenergy), civic clubs, county extension offices, faith-based groups, or create your own newsletter. Such an article can contain information on biomass production and utilization, interviews with key community leaders or experts, and lists of upcoming related events. Distribute the newsletter by mail, e-mail, or place copies around the community and with interested organizations. If you have trouble gaining access to postal or e-mail addresses, consider posting your newsletter on electronic mailing lists for various organizations.

**Posters and signs** – Develop a poster or sign to depict some aspect of biomass and display it at meetings and conferences, or get permission to hang it in appropriate buildings such as the city hall, libraries, or community centers. To build community awareness, create a simple, balanced message about bioenergy and where to get more information. These methods can reach a wide range of people; however, this method is difficult to manage in terms of measuring who your message reaches.

**Brochures or handouts** – Brochures or handouts can be strategically placed at state forestry and county extension offices, community centers, stores, and libraries. These tools may contain basic information or may be more technical. Make sure the information is at an appropriate level for the audience you want to reach. Check back often to assess whether
people are picking up materials and replenish when necessary. This is a good method to reach many people with a fairly detailed message but is limited in terms of personal interaction with the community.

**Field trip** – Invite interested community members, landowners, or community leaders to an organized tour of a nearby biomass-powered facility, a wood-handling operation, or a local forest that is sustainably managed. While the field trip may involve a substantial time commitment from participants, experiential learning opportunities like these can be beneficial and memorable.

**Conference/Symposium presentation** – You may be invited to give a presentation at a conference or symposium. These venues can be great places to network with people of similar interests, share ideas, and build new skills. Conference audiences are often interested in more detailed information.

**Presentations at city or county commission meetings** – You may receive a request to give a basic overview presentation on woody biomass. You might even request time to speak at local governmental meetings and plan a presentation that is relevant to the community leaders. You can provide an introduction to using biomass for energy, costs and benefits of using wood, the sustainable supply of biomass, the economic impacts, etc. Such a presentation provides an opportunity to share specific information with local leaders, and because these meetings are open to the public, you will be able to inform the residents about using biomass. Bring enough copies of simple, accurate handouts to share with the commission and attendees. If you choose this approach, be prepared to deal with individuals or groups who oppose the idea of using biomass.
## Appendix 5: Education Plan Template

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<th>Outreach Team Member</th>
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<th>Stakeholders</th>
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<td>Educators</td>
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<td>Forest managers, landowners, wood products business owners</td>
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<th>Tools/Materials Needed</th>
<th>Responsible Outreach Team Member</th>
<th>Targeted Stakeholders</th>
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<td>May 1</td>
<td>Info table at school registration area with brochures, calendar of info meetings</td>
<td>John Doe</td>
<td>Families, school officials, citizen groups</td>
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APPENDIX 6: WORKING WITH THE NEWS MEDIA

News media are a particularly important community stakeholder group because – despite the best outreach efforts – a large portion of the public is likely to hear about a project, an event, or an incident associated with a project through the media, and individuals are likely to form their opinions based on media coverage.

The strategic tradeoff inherent in media engagement is that the media provide wide distribution of project information at little cost (compared with advertising or direct mailing) in exchange for the loss of control over the message. The best chance of the media conveying the message desired by the project team results from well-prepared and well-executed media outreach efforts, but no effort can ensure success (however, ill-prepared efforts heighten the risk of unfavorable coverage).

In the news business, media types are generally categorized as “print” (e.g., newspapers and magazines) and “broadcast” (e.g., radio and television). Internet media is similarly divided, with blogs and Twitter akin to print, and video sites, such as YouTube, akin to broadcast. The nature and depth of stories for print and broadcast media differ and the associated outreach team preparations for media engagement should differ accordingly.

Media interest is dependent upon the interests and instincts of reporters and their editors. In small communities, individual reporters may cover every type of story. At major daily newspapers in metropolitan areas, reporters have topical “beats,” and a biomass energy project could be covered by a reporter specializing in science, energy, environment, business, or even human interest (in which case the project would be explained through a story on a profiled individual from a project team). It is useful to be familiar with a reporter’s beat assignment and the types of stories he or she has previously written on carbon sequestration, if any, or more broadly on industry and government initiatives to address air quality and climate change.

A media member will report on a project as he or she sees it. The outreach team must provide an adequate understanding so that reporters can relate the story to others; however, providing too much detail can overwhelm busy reporters and the story could be dropped in favor of others that can be quickly completed. Journalism training – and human nature – suggest that every story has at least two sides, and as a result, despite efforts by the outreach team to be objective, it is common for news stories to contain quotes or viewpoints from a project opponent or skeptic, even though their familiarity with the project, or carbon sequestration in general, may be minimal.

Deadlines and timely news govern the media world. Reporters are often writing on short deadlines and do not normally provide drafts of their stories for technical review in advance of publication. Magazines may occasionally provide drafts for review or conduct fact checking, but daily newspapers operate on such short time cycles that this is impractical.
Consequently, it is common to find factual errors and lost nuances. Furthermore, reporters sometimes dispense with the qualifications on information typically provided by scientists, such as the preliminary nature of data or limits on the applicability of findings or conclusions. Thus, in general, success is defined as having the major facts and messages about the project come through clearly and correctly in any given story. An understanding of the news media’s business environment can assist the outreach team in crafting and supplying project information in a manner that eases the reporter’s task in “seeing the news hook” and writing the story, and build relationships for further news coverage.
APPENDIX 7: CITY OF MONTPELIER, VT. DISTRICT HEAT BOND VOTE ARTICLE

District Heat Bond Vote – Tuesday, June 14th
By William Fraser, City Manager
Montpelier Bridge Article, June 2, 2011

The City is holding a special election on Tuesday, June 14th to consider $2.75 Million in bonds and loans to finance a District Heat system for the state government, city government, schools and portions of the downtown area. This article is an update of my April piece.

To recap, in January of 2010, the United States Department of Energy announced just five grant awards across the county totaling $20 million. The Montpelier District Energy project was the largest award at $8 million – 40% of the entire national funding. This project would upgrade the state’s existing wood fired central heating plant and expand its service area to City Hall, the Police Station, the Fire Station, Union Elementary School and Montpelier High School. The establishment of this heat distribution route would allow private buildings to be served.

Why is the city pursuing this project?

• It reduces toxic air emissions in downtown Montpelier by as much as 11 tons per year. It is consistent with state and local policy to move to cleaner, renewable energy sources.
• It replaces oil as a prime fuel source with locally/regionally produced wood chips keeping that economic activity in the northeast.
• It provides fuel cost stabilization for the state government, city government and school department allowing tax dollars to potentially be redirected toward services or infrastructure rather than to pay rising oil prices.
• It presents an economic development opportunity in downtown Montpelier by providing a cleaner and potentially cheaper source of heat for private building owners.
• The State’s heat plant will be removed from the flood plain and will operate more efficiently, generating an estimated $200,000 in annual fuel savings for state taxpayers.
• Conversion to a district heating system will allow many private oil furnaces to be removed from potential flood areas.
• This is proven technology. The State of Vermont converted their district heat system to wood (primarily) in the early 80’s. After 30 years of operating this system, the State is seeking to upgrade and expand it, not abandon it. Other municipalities such as Jamestown, New York and St. Paul, Minnesota have operated these successfully for years. This is common technology on college campuses around the country.

Will this cost extra tax dollars?

No. The combined bond, wood heat and operating costs will fall within the amount of money that the city and school system are already paying to heat their buildings with oil. As oil prices rise, the opportunity for potential savings may present itself. This is Vermont – we will certainly heat the schools, city hall, fire station and police station over the next 20 years. This
is not money available for other public purposes.

Three city buildings (City Hall, Fire Station and Police Station) and two school buildings (Union Elementary School and Montpelier High School) use 100,000 gallons of oil annually. Every dollar in oil price increase costs the community $100,000. Our most recent fuel prices have been $3.70 and $3.35 per gallon representing annual costs of $335,000 to $370,000. The combined District Heat annual costs (bond, fuel and operating) are expected to be between $305,000 and $331,000.

**Could this potential bond money be used for something else like roads?**

No. The city and schools will continue to pay to heat their buildings over the long haul. We cannot reallocate this money to roads or anything else. This project simply uses annual heating dollars to pay for future annual heating needs.

**Is this overextending the city’s bonding capacity?**

The city’s professional auditors (both present and prior) as well as the municipal bond bank have indicated that the city’s general fund debt limit is within acceptable levels although at the high end. The key is the ability to pay off the debt. As noted above, the city will be paying this money one way or the other, either for oil heat or for this project.

**Where is the total project money coming from?**

A total of $19.95 million has been identified from the following sources: The Federal Department of Energy Grant for $8 Million. The Governor proposed and the Vermont Legislature approved $7 million in State Capital funds. The State Department of Buildings and General Services (BGS) has identified $1.2 million in budget funds. The city was awarded a $1 Million grant from the Clean Energy Development Fund (CEDF) for this project. The remaining piece is the City’s $2.75 Million which is comprised of $2.0 Million in general bonds along with a $750,000 CEDF loan at 1% interest for which repayment is deferred until the project achieves positive annual cash flow.

**What happens if there are cost overruns?**

The heating plant project is the state’s, the distribution system is the city’s. Although the bids will be coordinated, each party is responsible for their portion of the project. Because the funding is established, overruns will, like any other project, require project changes, additional funds or potential cancellation of the project.

**How will the system be governed or operated?**

The State of Vermont will own and operate the upgraded and expanded central heating plant. The city will purchase bulk heat (hot water) through a master contract. This heat will serve the city and school buildings as well as through resale to private customers. Initial
revenues from those sales will be placed in reserve to address future expansion needs and long term system maintenance. It is possible that private system revenues could be used to reduce city heat costs but that scenario is not included in any financial projections.

As a condition of the state’s capital funding, a memorandum of understanding (MOU) must be signed by both parties by June 9th. This item is scheduled for the June 8th City Council meeting. The MOU will outline the basic structure of the City/State agreement and is a precursor to a more comprehensive contract to be signed after bids come in.

**Will the system be able to handle both the state and city capacity needs?**

As initially constructed, the heat plant will have sufficient capacity to handle state buildings, the five city buildings and initial private buildings while having unused capacity. The city will be acquiring some capacity rights upfront and the contract will address how the city acquires additional capacity as the city user base grows. Revenues from private customers will be used to acquire additional capacity based on user demand.

**Is the city capable of managing the system?**

The system operates very similarly to our water and sewer systems. Product is delivered through pipes and the city reads the meters, bills and collects. Our recently approved charter change provides the same municipal authority to operate this system as exists with water and sewer. Experience from other district heat systems tells us that the distribution portion is relatively low maintenance. Unlike our water and sewer systems, the state will be assuming the maintenance responsibility for the heat producing end of the system. Additionally, the city will likely be contracting with an experienced district heating entity to assist with the management of this system.

**With the water system deficit, why should we believe that the city can run this?**

The water system deficit is due almost entirely to the major capital cost of constructing the water treatment plant completed in 2000. This plant was constructed under federal and state order and the city was mandated to follow certain requirements regarding size of the plant. City officials recognized that this would be a problem and successfully negotiated a one-third reduction in the size of the plant. The capital cost for even the smaller plant, however, has proven difficult to overcome. Prior to the plant’s construction, the water fund had carried significant surpluses for many years.

The distribution, maintenance, metering and collection system has operated successfully and is the most similar to the district heat system. Most importantly, the city is entering into this project voluntarily and has had the opportunity to establish financial parameters to avoid a situation like the water plant expense.
What will be the rates for private customers?

The city will establish rates based on bulk cost from the state, operating costs and future reserve needs. The city’s district heat resale price is currently projected at around $29 per MMBTU - equivalent to $2.80 per gallon of oil.

Are there commitments from private customers?

Without an established firm price and finalized route, we do not have firm commitments from private customers. Preliminary interest has been high from private property owners. The project is designed to work financially without any private customers. Those customers are, however, a prime reason to do the project in the first place.

What if something better comes along and we’ve committed to this?

Rapid advancements are being made in energy efficiency. Almost all of them, however, are in the area of electric generation. To generate heat to the temperature that most of us need for homes and offices requires burning something. Those alternatives remain essentially wood or oil. Wood is a renewable resource available regionally. Waiting for an unknown future heat alternative would require the city and private buildings to continue heating with oil. Any change in heat system is a gamble but remaining with the present system is also a gamble on oil prices.

Couldn’t the city and school find easier ways to achieve efficient heating?

If the city’s only goal was to improve its own heat efficiency then we would not run pipes from the state complex to various parts of town. The goal of this system is to not only improve opportunities for the city government but also to enable similar opportunities in downtown.

How will construction of this project affect downtown?

Construction of this project will cause temporary disruption to downtown. Like any major project it will be managed but there is no question that this requires laying pipes underground throughout downtown along the planned route. This does create an opportunity for streets and sidewalks to be repaved and rebuilt.

Is this project on a deadline?

Yes. The federal dollars require that the $8 million in federal money must be matched with $8 million in local funding. The match must be demonstrated by June 21st of this year. The June 14th bond vote represents the last component of the local match. State money serves as a portion of the match but does not meet all the grant requirements because it does not provide funding for the distribution portion of the project, only the heat plant portion.
Why is the bond vote being held now instead of at March town meeting?

The City Council wanted more project information and to be sure that state funding was secured before bringing the proposal to voters.

If the bond passes will the project definitely be built?

Passage of the bond vote would represent a major step toward the project’s success. However the project could still stall if bid prices are too high or there are difficulties in reaching a final contractual agreement with the state administration.

What happens if the bond vote doesn’t pass?

The City would work with DOE to see if the remaining available funds could be used to help the State upgrade their plant for a potential future district system. If DOE did not accept that proposal, the project would literally be dead since there would not be time to develop other alternatives and/or re-vote.

This is a very important project and a very important decision to be made about the future of the City. Please take the time to vote on June 14th or by absentee vote earlier. Thank you for reading this article and for your interest in Montpelier city government. Please feel free to contact me at wfraser@montpelier-vt.org or 802-223-9502 with questions or comments.

How Customers Will Pay for District Heat

Customers along the route of the district heating pipes who elect service from the city will pay a one-time connection fee, just as water and sewer customers do. This fee will help to defray the cost of connecting the pipes in the streets to the heating system inside the building, and installing the “energy transfer station” (the interface between the city’s system and the customer’s heating equipment).

The city intends to set an affordable connection fee so that new customers will be encouraged to connect. Customers can choose to pay the connection fee directly, or they may choose to finance the connection cost, using one of the finance options currently under development.

Customers will also pay for the amount of heat they use, in the same way that they pay electric bills. Connected buildings will have heat meters (part of the energy transfer station) that measure how much heat the building extracted from the district heating system.

Much like the way that electricity customers pay for metered energy based on electric rates, there will be established heat rates as the basis for payments for the service.
Disruption During Construction

The twinned supply and return pipes that form the “spine” of the district heating system will be buried, to the greatest extent possible, in city-owned street rights of way – under the pavement, under the sidewalk, or in grassed areas. Near the heating plant, pipes will be buried under the parking lots of the state’s Capitol Complex. The branch that runs to Montpelier High School will follow the bike bath, either under or adjacent to the path, subject to negotiation with the property owner, the Vermont State Employees Credit Union. Insulated pipes will be installed under existing bridges over the Winooski and North Branch rivers.

The construction project, which will mostly take place in 2012, will cause disruption to traffic and business in the area where pipes will be installed – like any other “pipe in the ground” project undertaken by the city. The city is committed to work with residents and business owners so that all are fully informed in advance about the scheduling of pipe installation in different areas and to keep disruptions to a minimum. The city intends to hire a contractor who is familiar with the installation of buried utilities in Montpelier and who will be sensitive and committed to minimizing disruption. District energy pipe is designed to be shallow buried (about 2-3 feet cover over pipes), making installation quicker than for pipes, such as sewer and water pipes, that are buried deeper.

The city intends to use the project as an opportunity to re-pave and improve affected sidewalks and streets.

District Heating Project - Risk & Risk Management

As with any large capital project, there are risks associated with the district heating project. Risks that are common with other buried pipe projects carried out by the City include: bids coming in over budget; cost over-runs and change orders during construction; project delays; problems in the engineering design; and disruption of traffic. The city intends to address these problems as we have in other projects, by carrying contingency amounts in the budget, having ready plans for a reduced scope of work, by employing skilled resources to manage the construction, using contractors who have successfully carried out similar work in the past, and by scheduling excavation and pipe installation in discreet sections – some possibly carried out at night – to avoid undue traffic disruption and adverse impact on businesses.

There are additional risks specific to this project. We are implementing the city’s district heat pipe installation project in close coordination with the state’s modernization of its central biomass plant. This partnership carries risks which we are mitigating through the establishment of a memorandum of understanding (MOU) with the state. The MOU will be the basis of a more detailed contract later, spelling out the long-term contractual relationship under which we will purchase heat for our own use and re-sell to our customers. We will be
establishing a new city service. However, this is very similar to the water service we already provide. There will be many common elements: billing, responding to customer service calls, maintaining the buried pipe system, and responding to emergency situations. The city intends to do carry out these new functions using a mix of our own staff resources and hiring out some services from experienced contractors.
APPENDIX 8: STATE FORESTRY AGENCIES

If interested in further state-specific biomass information, or in identifying suppliers of biomass fuel, contact your state forestry agency.

Alabama Forestry Commission  
http://www.forestry.state.al.us/  
513 Madison Ave  
Montgomery, AL 36104-3631  
(334) 240-9300  
Mailing Address: PO Box 302550  
Montgomery, AL 36130-2550

Alaska Division of Forestry  
http://forestry.alaska.gov/  
550 W. 7th Ave, Suite 1260  
Anchorage, AK 99501-3557  
Phone: 907-269-8400  
Fax: 907-269-8901  
TTY: 907-269-8411

Arizona State Land Department  
http://www.land.state.az.us/  
1616 W. Adams Street  
Phoenix, AZ 85007  
602 542-4631

Arkansas Forestry Commission  
http://www.forestry.state.ar.us/  
AFC State Office  
3821 West Roosevelt Road  
Little Rock, AR 72204  
(501) 296-1940  
(501) 296-1949 (fax)

California Department of Forestry and Fire Protection  
http://www.fire.ca.gov/  
Sacramento Headquarters  
1416 9th Street  
PO Box 944246  
Sacramento, CA 94244-2460  
(916) 653-5123

Colorado State Forest Service  
http://csfs.colostate.edu/  
5060 Campus Delivery  
Fort Collins, CO 80523-5060  
(970) 491-6303  
(970) 491-7736 FAX

Connecticut Division of Forestry  
http://www.ct.gov/dep/site/default.asp  
Connecticut Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127  
860-424-3000

Delaware Forest Service  
http://dda.delaware.gov/  
2320 South DuPont Highway  
Dover, Delaware 19901  
Ph: (302) 698-4500

Florida Division of Forestry  
http://www.floridaforestservice.com/index.html  
3125 Conner Boulevard  
Tallahassee, Florida 32399-1650  
Telephone: 850/ 488-4274  
FAX: 850/ 488-0863

Georgia Forestry Commission  
http://www.gfc.state.ga.us/  
5645 Riggins Mill Road  
Dry Branch, Georgia 31020  
Macon, Georgia 31202-0819  
478-751-3500  
1-800-GA-TREES (428-7337)  
Fax: 478-751-3465

Hawaii Division of Forestry and Wildlife  
http://hawaii.gov/dlnr/dofaw  
Kalanikuu Building  
1151 Punchbowl St., Room 325  
Honolulu, HI 96813  
Ph: (808) 587-0166  
Fax: (808) 587-0160

Idaho Department of Lands  
http://www.idl.idaho.gov/  
Boise Staff Office  
300 N. 6th Street, Suite 103  
Boise, ID 83702  
Phone (208) 334-0200  
Fax (208) 334-5342 or (208) 334-3698
Illinois Division of Forest Resources
http://dnr.state.il.us/conservation/forestry/
One Natural Resources Way
Springfield, IL 62702-1271
217-782-6302

Indiana Division of Forestry
http://www.state.in.us/dnr/forestry/
Indiana Department of Natural Resources
Division of Forestry
402 West Washington Street Room W296
Indianapolis, IN 46204-2739
(317) 232-4105

Iowa Dept. of Natural Resources - Forestry Division
http://www.iowadnr.gov/Environment/Forestry.aspx
Central Office
Wallace State Office Building
502 E. 9th Street
Des Moines, IA 50319-0034
515-281-5918

Kansas Forest Service
http://www.kansasforests.org/
2610 Claflin Road
Manhattan, KS 66502
785 532 3300 (Phone)
785 532 3305 (FAX)

Kentucky Division of Forestry
http://forestry.ky.gov/Pages/default.aspx
627 Comanche Trail
Frankfort, KY 40601
502-564-4496 (Telephone)
502-564-6553 (Fax)

Louisiana Department of Agriculture and Forestry
http://www.ldaf.state.la.us/portal/
5825 Florida Boulevard
Baton Rouge, Louisiana 70806
Phone: 225-925-4500
Fax: 225-922-1356

Maine Forest Service
http://www.maine.gov/doc/mfs/
22 State House Station
Augusta, Maine 04333-0022
(207) 287-2791
Fax: (207)287-8422

Maryland Forest Service
http://www.dnr.state.md.us/forests/
Tawes State Office Building
E-1 / 580 Taylor Avenue
Annapolis, Maryland 21401
410-260-8531
Fax: 410-260-8595

Massachusetts Forests & Parks
http://www.mass.gov/dcr/forparks.htm
Department of Conservation and Recreation
251 Causeway Street, Suite 900
Boston, MA 02114-2104
617-626-1250
Fax: 617-626-1351

Michigan Forest Management Division
http://www.michigan.gov/dnr
PO Box 30452
Lansing MI 48909
517-373-1275

Minnesota Dept. of Natural Resources - Division of Forestry
http://www.dnr.state.mn.us/forestry/index.htm
500 Lafayette Road
St. Paul, MN 55155-4040
(651) 296-6157
(888) 646-6367

Mississippi Forestry Commission
http://www.mfc.ms.gov/
660 North Street, Suite 300
Jackson, Mississippi 39202
(601) 359-1386 Phone
(601) 359-1349 Fax

Missouri Department of Conservation
http://mdc.mo.gov/
Conservation Headquarters
2901 W. Truman Blvd.
Jefferson City, MO, 65109
Phone: 573-751-4115
Fax: 573-751-4467

Montana Dept. of Natural Resources and Conservation - Forestry Division
http://dnrc.mt.gov/forestry/
2705 Spurgin Road
Missoula, MT 59804
Phone: (406) 542-4300
Fax: (406) 542-4217
Nebraska Forest Service
http://www.nfs.unl.edu/
Forestry Hall
P.O. Box 830815
Lincoln, NE 68583-0815
(402) 472-2944
(402) 472-2964 (FAX)

Nevada Division of Forestry
http://forestry.nv.gov/
2478 Fairview Drive
Carson City, Nevada 89701
(775) 684-2500

New Hampshire Division of Forests & Lands
http://www.nhdfl.org/
PO Box 1856
Concord, NH 03301
603-271-2214

New York Division of Lands & Forests
http://www.dec.ny.gov/
625 Broadway FL 5
Albany, NY 12233
518-402-9405

New Jersey Division of Parks & Forestry
http://www.state.nj.us/dep/parksandforests/
PO Box 420
501 East State Street, 4th floor
Trenton, NJ 08625-0420
609-292-2734

New Mexico Forestry Division
http://www.emnrd.state.nm.us/index.html
1220 South St. Francis Drive
Santa Fe, NM 87505
P: (505) 476-3200
F: (505) 476-3220

North Carolina Division of Forest Resources
http://ncforestservice.gov/index.htm
1616 Mail Service Center
Raleigh, NC 27699-1616
919-857-4801
Fax 919-857-4802

North Dakota Forest Service
http://www.ndsu.edu/ndfs/
307 - 1st Street East
Bottineau ND 58318-1100
Tel: (701) 228-5422

Ohio Department of Natural Resources - Forestry
http://www.dnr.state.oh.us/default/tabid/4803/Default.aspx
Division of Forestry
2045 Morse Rd
Building H-1
Columbus, OH 43229-6693
614-265-6694

Oklahoma Forest Service
http://www.forestry.ok.gov/
2800 N Lincoln Blvd
Oklahoma City, OK 73105
Tel: 405-522-6158
Fax: 405-522-4583

Oregon Department of Forestry
http://www.oregon.gov/odf/Pages/index.aspx
Salem Headquarters
2600 State Street
Salem, Oregon 97310
Phone: 503-945-7200
Fax: 503-945-7212

Pennsylvania Bureau of Forestry
http://www.dcnr.state.pa.us/forestry/index.asp
Rachel Carson State Office Building
6th Floor
P.O. Box 8552
Harrisburg, PA 17105-8552
Phone: 717-787-2703
Fax: 717-783-5109

Rhode Island Division of Forest Environment
http://www.dem.ri.gov/programs/bnatres/forestry/index.htm
2185 Putnam Pike
Chepachet, RI 02814
(401) 568-2013
fax 568-2045

South Carolina Forestry Commission
http://www.state.sc.us/forest/
PO Box 21707
Columbia, SC
Phone: 803-896-8800
South Dakota Division of Resource Conservation & Forestry
http://sdda.sd.gov/conservation-forestry/
523 E Capitol Avenue
Pierre, SD 57501-3182
P: 605.773.3623
F: 605.773.4003

Tennessee Division of Forestry
http://www.tn.gov/agriculture/forestry/index.shtml
P.O. Box 438
Lexington, TN 38351
(731) 968-6676
Fax: (731) 968-5356

Texas Forest Service
http://txforestservice.tamu.edu/main/default.aspx
College Station, TX
(979) 458-6600

Utah Division of Forestry, Fire and State Lands
http://forestry.utah.gov/ffsl.htm
1594 W North Temple, Ste 3520
Salt Lake City, UT 84114-5703
801.538.5555
801.533.4111 fax

Vermont Department of Forestry, Parks & Recreation
http://www.vtfpr.org/
103 South Main Street, Building 10 South
Waterbury, Vermont 05671-0601
802-241-3678

Virginia Department of Forestry
http://www.dof.virginia.gov/
900 Natural Resources Drive
Charlottesville, Virginia 22903
tel: 434.977.6555
fax: 434.296.2369

Washington Department of Natural Resources
http://www.dnr.wa.gov/Pages/default.aspx
PO Box 47000
1111 Washington Street SE
Olympia, WA 98504-7000
(360) 902-1000

Wisconsin Department of Natural Resources
Forestry Program
http://dnr.wi.gov/
101 S. Webster Street
PO Box 7921
Madison, Wisconsin 53707-7921
608-266-2621