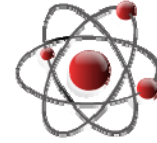


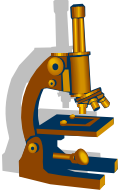
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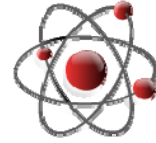
“Woody Biomass-Nebraska” Social Studies Lesson Plan

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Spring, 2010

Dear Educator,

This *the.News* online video report for *the.Sci* & *the.Gov* provide middle and high school students with a valuable exercise in science, social studies, and language arts with this **6:08** minute video report on “Woody Biomass-Nebraska” at www.pbs.org/newshour/thenews/thesci and www.pbs.org/newshour/thenews/thegov Correspondent, Robyn Wisch takes an in-depth look at alternative energy sources and Nebraska’s contribution to conservation.. Lessons for science, social studies and language arts are available to support this video in the “For Educators” section of the website. All videos and curricula have been informed by *the.News* instructional design that can be found on the website www.pbs.org/newshour/thenews. The curriculum includes content-based standards, discussion questions, student activities, vocabulary and primary reference sources. A complete transcript of each video report includes time codes to assist in isolating specific segments of the video and to augment the instruction of media literacy and multimedia production. All of this material is presented as options to fit teachers’ instructional needs.

References to Larry Bell’s “The 12 Powerful Words” are highlighted in **bold** in the lesson plans, in the “thought starter” questions on the home page and educator’s page, and in the transcript (to denote where they are used in the video segment).

We have also added general topics to correlate to the lessons and video as well as concept based curriculum examples.

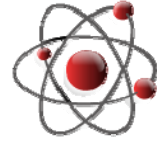
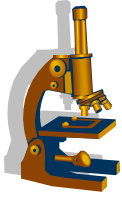
We welcome our partners at the Omaha Public Schools who have joined *the.News* in a special pilot project during the 09-10 school year. We are also developing a new authoring tool for students called *YOU.edit*, to launch in spring 2010. It will give students an online tool to remix the content of *the.News* reports, so they can create their own multimedia presentations. This editing tool will reside on our website so that it will be available to all students with an internet connection. It will be password protected so that it can serve as a viable educational asset that allows classroom teachers to assign multimedia projects within the security and content safety of *the.News* website.

Answers to student “**thought starter**” questions listed below the video.

- #1. wood, wind power, solar power, ethanol
- #2. Arbor Day
- #3. woody biomass

Sincerely,

Karen W. Jaffe
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Arlington, VA 22206
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www.pbs.org/newshour/thenews



Woody Biomass-Nebraska

This lesson was designed to support *the.News* video “Woody Biomass-Nebraska” The video can be found online at www.pbs.org/newshour/thenews/thesci and www.pbs.org/newshour/thenews/thegov

Grade Level: 7-12



Concept Areas:

Social Studies,
Language Arts,
Government/Civics;
A/P classes

Key Concept(s)

This lesson examines the potential benefits and costs of utilizing woody biomass to generate power. Students will understand that biomass comes in different forms and will focus their **analysis** on the use of woody biomass. They will then role-play interested advocacy groups to **formulate** a public policy for burning woody biomass to produce energy.

Key Objectives:

The student will:

- Examine how woody biomass is used in the process of providing energy to heat and cool small public facilities
- **Analyze** the costs and benefits of burning woody biomass for energy production
- Understand the various positions regarding burning woody biomass for energy production
- Participate in a mock-policy committee to **formulate** policies for burning woody biomass for energy production

Omaha Public Schools

<http://www.ops.org/District/LinkClick.aspx?fileticket=Hbqyrrg2ydM%3d&tabid=912&mid=2006>

Social Studies U.S. History Grade 8

- Citizenship/Government: Describe the structure and function of government, the expanding role and responsibilities of the citizen in a representative democracy, and compare and contrast these elements to those in other countries.

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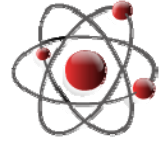
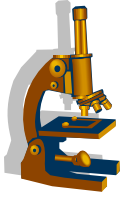
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Social Studies Government Grade 12

- Standard 04: Describe the factors that influence government policy and decisions.

Conceptual Lens: Evolution

Enduring Understanding: In order to create a clean energy economy it is necessary to develop alternative energy sources.



Key Vocabulary:

- **Biomass:** organic matter, esp. plant matter that can be converted to fuel and is therefore regarded as a potential energy source.
- **Blind faith:** belief without true understanding, perception, or discrimination.
- **Carbon based:** related to or having to do with carbon materials.
- **Extraction:** The removal by withdrawing or pulling out of any material from its place of origin.
- **Fossil fuels:** any combustible organic material, as oil, coal, or natural gas, derived from the remains of former life.
- **Incentivize:** it incite or encourage into action, as a reward offered for increased productivity.
- **Panacea:** an answer or solution for all problems or difficulties.
- **Woody biomass:** wood or wood waste material that can be converted into energy usually through burning.

Source: Dictionary.com

Omaha Public Schools

<http://www.ops.org/District/LinkClick.aspx?fileticket=Hbqyrrg2ydM%3d&tabid=912&mid=2006>

Language Arts Grade 8

Reading

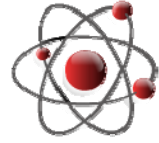
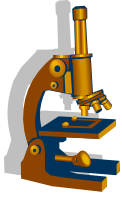
Standard 01: Students will read a variety of grade level texts fluently with accuracy, appropriate pace, phrasing and expression.

Standard 03: Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.

Multiple Literacies

Standard 09: Students will research, analyze, and communicate information in a variety of media and formats (textual, visual, and digital)





Materials:

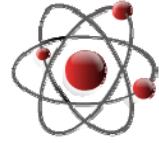
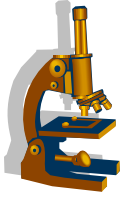
- “Woody Biomass-Nebraska”
www.pbs.org/newshour/thenews/thesci
www.pbs.org/newshour/thenews/thegov
- Internet access
- Student Handouts
 - Review questions for the news segment “Woody Biomass”
 - Issues Surrounding Burning Woody Biomass for Energy (reading handout)
 - Deliberation Procedures
 - Stakeholders’ Points of View
 - Negotiation Records
 - Agreement Form
- Pens, paper, pencils

Lesson Topics:

- alternative energy
- biomass technology
- forest conservation
- public policy
- role-playing simulation
- data collection and analysis
- policy recommendations

Time Frame:

- Opening Activity: 40 minutes
- Main Activity: Policy deliberations and development: 2-3 class periods (including small presentations)



Omaha Public Schools

<http://www.ops.org/District/LinkClick.aspx?fileticket=Hbqyrrg2ydM%3d&tabid=912&mid=2006>

Language Arts Grade 12

Reading

Standard 01: Students will read a variety of grade level texts fluently with accuracy, appropriate pace, phrasing and expression.

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Multiple Literacies

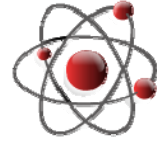
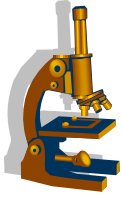
Standard 09: Students will research, analyze, and communicate information in a variety of media and formats (textual, visual, and digital).

Background

Humans have used **biomass** to produce energy for thousands of years. Our cave-dweller ancestors used wood-fueled fires to cook, light the night, and protect themselves. Over time humans continued to burn **carbon based** materials (fossil fuels) like coal, oil, and natural gas to light their way, warm their dwellings, and drive their machines. The United States rose to prominence and world leadership on this fuel. But in short order problems arose with the heavy smoke that for decades was ignored as the price to pay for progress. Soon, poor health was connected with the pollution. Coupled with this was the fact that obtaining inexpensive and reliable sources of fossil fuels required the United States go outside its borders, sometimes to places where the reliability was questionable and the price unpredictable. Alternatives were developed from different technologies, such as nuclear, solar, wind, and geothermal.



Over the past few years people have taken a serious look at biomass for an inexpensive, reliable source of energy. Biomass is defined as any animal or plant-derived material that can be converted to energy. Some biomass can be processed into cleaner burning fuel and other forms can be burned directly. It's not a **panacea** to all our energy challenges as the different forms of biomass come with their own set of problems. Some forms take more energy to produce than is feasible to make. Others produce gasses that are as harmful as fossil fuels. One form of biomass material emerging as a viable source of energy is **woody biomass**, from forest waste, logging,



and the harvesting of fast growing, commercially produced trees that can be burned to heat steam boilers to produce electricity. One example of such use is the Lied Lodge at the Arbor Day Farm in Nebraska City, Nebraska. This is where the national Arbor Day, the holiday that celebrates trees, began in 1872. The holiday is celebrated every April 30th. The 160,000 square foot facility of the lodge burns 295 tons of wood a month for heating and cooling and has been doing so since 1992. Several municipalities around the country have set up similar plants and more are being considered across the

country. These smaller plants would burn woody biomass for a local area and reduce the cost of electricity. Another benefit from burning woody biomass is it would **incentivize** cleaning up the forests of waste wood and dead trees and improve fire prevention efforts. Utilizing this locally produced energy source would also benefit the economy with a less expensive source of energy and provide new jobs in harvesting, transportation, and utilization.

McRel

www.mcrel.org

Civics

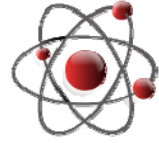
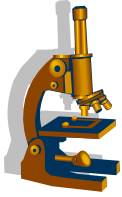
Standard 21: Understands the formulation and implementation of public policy

Level III (Grades 6-8)

- Understands what public policy is and knows examples at local, state, and national levels
- Understands why conflicts about values, principles, and interests may make agreement difficult or impossible on certain issues of public policy (e.g., affirmative action, gun control, environmental protection, capital punishment, equal rights)

Level IV (Grades 9-12)

- Knows a public policy issue at the local, state, or national level well enough to identify the major groups interested in that issue and **explain** their respective positions
- Understands the processes by which public policy concerning a local, state, or national issue is formed and carried out
- Understands why agreement may be difficult or impossible on issues such as abortion because of conflicts about values, principles, and interests



But there is still that concern about the smoke. Burning wood produces smoke and gasses that are harmful to humans. There is also a concern over irresponsibly harvesting the forests in our insatiable quest for more power. It will be up to government entities—federal, state, and local—to develop effective public policies that can address these issues and provide a viable source for our energy needs.

Partnership for 21st Century Skills

<http://www.p21.org/>

Civic Literacy

- Participating effectively in civic life through knowing how to stay informed and understanding governmental processes

Creativity and Innovation

- Use a wide range of idea creation techniques (such as brainstorming)
- Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

Critical Thinking and Problem Solving

Reason Effectively:

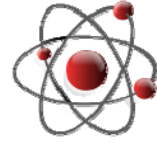
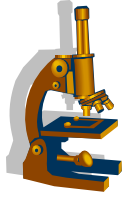
- Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

Make Judgments and Decisions:

- Effectively analyze and evaluate evidence, arguments, claims and beliefs
- Analyze and evaluate major alternative points of view
- Interpret information and draw conclusions based on the best analysis

Communication and Collaboration

- Articulating thoughts and ideas clearly and effectively through speaking and writing
- Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
- Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact



Lesson Plan

To better facilitate this lesson, distribute the background essay above before you start this unit. That way, students will have read the content and be prepared for the activities below.

Opening Activity

News Segment Viewing Activity

1. Divide the class into viewing groups of 2-3 students.
2. Distribute the student handout “Review Questions for *the.News* segment.”
3. Show the video “Wood Biomass Nebraska” www.pbs.org/newshour/thenews/thesci or have students watch the video as homework.
4. Discuss with students the following areas from the news segment:
 - a. What are some of the benefits of burning woody biomass to produce energy?
 - b. How might burning woody biomass be cleaner than burning fossil fuels?
 - c. How might using woody biomass benefit the forests and the economy?
 - d. What might be some of the drawbacks to burning woody biomass?

Main Activity

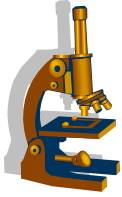
Main Activity: Policy Deliberation and Development

In this next activity, students will simulate a process used by policy makers to address important issues. They will role-play advocates for different interest groups to find a workable solution burning woody biomass for energy.

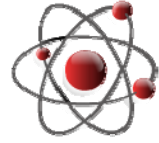
1. Divide students into groups of five. Distribute the handout “Issues Surrounding Burning Woody Biomass for Energy.” (this can also be assigned as homework the night before) Assign the following roles and give each group some time to meet and discuss their positions. If more time allows, you can have students research these positions in greater detail.

The Positions -

- A forester concerned about the state of the nation’s forests
 - Anti-burning activist concerned about the depletion of the nation’s forests
 - Energy company exec interested in incorporating wood-burning plants into the power grid
 - Energy consumer advocate looking to find inexpensive sources of energy
 - Pro-biomass advocate supporting the use of woody biomass for energy production
2. Distribute the “Deliberation Procedures” handout to students and review the procedures and graphic organizers. Answer any questions students may have.



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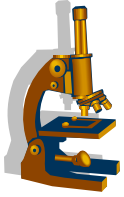
3. Have each group proceed through the activity to develop their agreements. If time permits, have each group present their options to the entire class.
4. Then have students individually complete the agreement form.

Assessment

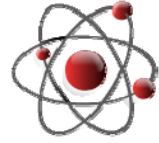
- For *the.News* Segment Viewing Activity “**Woody Biomass-Nebraska**” students can turn in their notes from their viewing of the segment.
- Cooperation and participation in group activities
- Individual completion of the Agreement Form
- Students who disagree with the policy group’s final agreement could write up a paragraph explaining their disagreement with the policy group and suggest an alternative they feel is better.

Resources

- Alternate Energy Sources <http://www.alternate-energy-sources.com/index.html>
- Arbor Day Education section on Biomass <http://www.alternate-energy-sources.com/biomass-energy.html>
- Arbor Day Foundation <http://www.arborday.org/>
- Biomass Power Association <http://www.usabiomass.org/>
- Energy Justice Network <http://www.energyjustice.net/biomass/>
- Floridians Against Incinerator Projects <http://floridiansagainstinincineratorsindisguise.com/>
- Massachusetts Sustainable Forest Bioenergy Initiative http://www.mass.gov/?pageID=eoeaterminal&L=4&L0=Home&L1=Energy%2c+Utilities+%26+Clean+Technologies&L2=Renewable+Energy&L3=Biomass&sid=Eoeea&b=terminalcontent&f=doer_renewables_biomass_bioenergy_initiative&csid=Eoeea
- Nebraska Forest Service <http://nfs.unl.edu/> and briefing paper on woody biomass <http://www.nfs.unl.edu/documents/impactreports/NEwoodybiomasspotential.pdf>
- State Environmental Resources Center <http://www.serconline.org/index.html>
- Timber Buy Sell.com Trade publication for the timber industry <http://timberbuysell.com/>
- Woody Biomass Energy for Sustainable Rural Development (a project of the Food and Agriculture Organization of the United Nations <http://www.woodybiomass.org/>

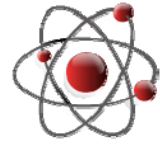
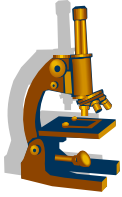


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Activity Designer:

Greg Timmons is a former social studies teacher now freelance writer and educational consultant.



Student Handout 1: Review questions for *the.News* news segment “Wood Biomass-Nebraska”

Directions: Answer the questions below from the news segment “Wood Biomass-Nebraska” on *the.News* website at www.pbs.org/newshour/thenews/thesci and www.pbs.org/newshour/thenews/thegov.

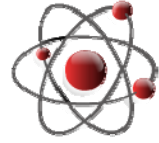
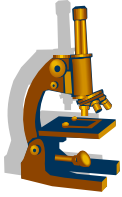
1. List some of the alternative sources of power now being used in the Midwest	

2. **Describe** how the Arbor Lied Lodge has been able to save money burning wood to heat and cool its facility.

3. From the list of steps below, **trace** the order of events in the burning chamber described by John Hunter in the news segment.

Random Steps	Place letter of steps in proper order (a-d)
a. Smoke and burnt particulates are exhausted through the chimney	
b. Particulates are re-burned in the fire box	
c. The fuel and air are initially burned	
d. The exhaust and particulates are swirled back into the fire box	

4. **Explain** why Scott Josiah believes burning wood for energy is nearly “carbon neutral.”

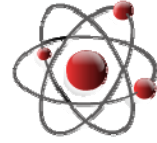
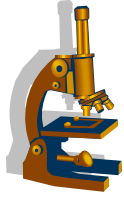


- 5. **Describe** the problems facing many forests and how harvesting waste wood to burn in biomass plants will bring them some benefits.

Problems in forests	Benefits to forests of burning waste wood

- 6. The best type of heating facility for burning wood is central heating. What types of places are burning wood to heat their buildings and what is the potential for using waste wood in Nebraska?

- 7. Proponents of burning woody biomass to produce energy would improve the economy. **Explain** how.



Issues Surrounding Burning Woody Biomass for Energy

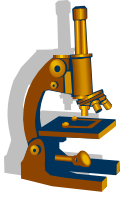
For nearly as long as humans have inhabited the earth, they have produced energy by burning wood. Cave dwellers discovered fire and used it to cook, light, and protect themselves. Until the 20th century, not much had changed. People found more efficient materials to burn in the form of **fossil fuels**, but also found them hard to obtain as most are buried deep in the earth surface. As **extraction** technology got better, more of this material could be obtained. Lately, however, there has been a growing concern over the devastation to the land and water ways due to extraction and concern over the harmful effects on climate due to the burning of these fuels. In the mid-twentieth century, nuclear fission was harnessed to produce energy. Though initially thought to be inexpensive and abundant, nuclear power soon became expensive and problems developed over the disposal of its waste product. After a few power plant accidents raised deep concerns over safety, the public cooled on the idea of nuclear power and the development of plants slowed down considerably in the United States.

As America continues its quest to find inexpensive sources of energy, many state and local governments and organizations have looked in their own “backyards” for possible sources of energy. States with traditional natural resources such as coal, oil, and natural gas have provided incentives and encouraged development of these resources, while trying to protect the environment. Often times, because of the nature of the resource being developed, this can be a challenge. Recently, states and the federal government have been looking closer at non-traditional energy sources that can be renewed; sources such as wind, solar, and geothermal. One of the more promising resources being considered is biomass, which is any animal or plant-derived material that can be converted into energy. Biomass energy can be processed into other forms of fuel such as ethanol from agriculture crops and methane from sewage and animal manure. Many biomass materials can also be burned with little or no preparation. This can be in the form of wood chips and logging waste or solid landfill waste. The major advantage to these forms of combustible fuel is they are all renewable.

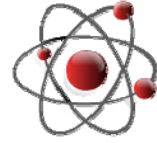
Over the past few years, as people have considered using biomass materials for energy production, there has also been more scrutiny over its use in the attempt to avoid making the “**blind faith**” decisions that were made with the use of fossil fuels and nuclear power. On the positive side, converting biomass materials into energy production has much promise.

- Biomass is renewable.
- There are many choices of biomass energy products that can be produced.
- Converting these materials into energy would help reduce the amount of solid waste produced.
- Biomass can be used in several different energy production methods
- Biomass can be easily integrated into the current system of energy production.

There are also some concerns about the use of biomass:



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- Some forms of biomass energy production produce gasses like carbon-dioxide, carbon-monoxide, methane, and nitrous oxide which are released into the atmosphere and contribute to global warming.
- Some forms of biomass production are expensive and cost more than the energy they produce.
- The harvesting, storage and transport of raw biomass materials is expensive and not nearly as extensive as that of fossil fuels.
- A biomass power plant requires huge space and the recycling of wastes requires huge amounts of water.

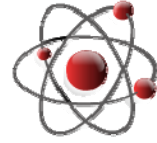
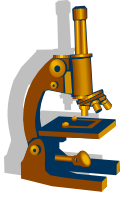
One form of biomass material to emerge recently as a viable source of energy is woody biomass. Several municipalities and organizations have been burning wood waste products for several years. Among these is the Lied Lodge at the Arbor Day Farm in Nebraska City, Nebraska. This is where the national Arbor Day, the holiday that celebrates trees, began in 1872. The holiday is celebrated every April 30th. The 160,000 square foot facility burns 295 tons of wood a month for heating and cooling and has been doing so since 1992.

As federal, state, and local governments and organizations consider using woody biomass for energy production several different viewpoints have emerged expressing both interest and concern. Among these are:

Benefit to the nation's forests—Using biomass power will improve the health of our nation's forests by removing millions of tons of forest waste products annually and reduce the threat of forest fires. Until recently, the U.S. Forest Service practiced a fire suppression policy of putting out every forest fire before it got going. This resulted in wide spread under growth which has left many of the nation's forests unhealthy and more combustible. Much of the dead and diseased wood and undergrowth could be harvested for burning in biomass electricity generating power plants. Burning biomass materials is not a complete answer to American's energy problems and extensive clear-cutting and harvesting of the nation's forests for biomass burning is not recommended. But for the sake of improving the health of forestland, biomass power should be seriously considered.

Danger to the forests and atmosphere—Biomass incinerators produce hundreds of tons of pollutants that contaminate the atmosphere. These are nitrogen oxides, carbon monoxide, and harmful particulate matter that can cause and aggravate respiratory diseases. The claim that biomass generation is carbon neutral is highly suspect for while it takes 30 to 40 years to grow a tree, it only takes a few minutes to burn one. The amount of wood need to sustain an average-size biomass incinerator can be five times the total yield of timber harvested now in many states. Hundreds of thousands of forest would need to be harvested each year for biomass alone.

Benefit to energy businesses—Energy companies like the idea of finding any cheap, reliable source of energy that can be incorporated into the power grid. Most energy companies are for-



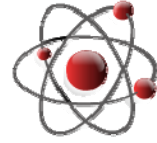
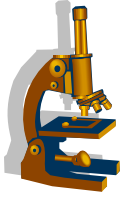
profit ventures that operate on standard business models of buying raw materials at the lowest rate, converting them into a product, and selling them for a profit to sustain the business, reward investors, and provide a good product at a fair price to the consumer. Energy companies want to help set up biomass plants that can provide electricity to local areas. But they don't want to run into the problems experienced with nuclear power. It too seemed like an inexpensive and reliable source of energy. But over time it has run into public disapproval, government regulation, and waste disposal problems.

Interest by energy consumer advocates—It is believed that biomass has potential, but consumer advocates express concern over the price of energy in the long run. Initially, biomass looks like an inexpensive form of power generation. But the start-up costs of building and bringing online biomass power plants aren't clearly known and this could cause consumers' rates to increase. Add to this the potential for government regulation that can make power generation more expensive for the power companies and there is the danger that electricity will be more, not less expensive once the biomass plants are operational. Still, if it can be shown that burning woody biomass can benefit consumers' pocket books, it could add to the possibilities of finding alternatives to fossil fuels.

Supporters of biomass—Advocates believe that biomass is one of the best ways for the country to help meet its energy needs. Heavy dependence of fossil fuels, especially foreign based, has put the nation at risk. The cost for these fuels has gone up as the resource has become more difficult to obtain. Coupled with the fact that much of the available fossil fuels comes from unreliable regions of the world is also a concern. Biomass, and especially woody biomass, offers an economical and environmentally friendly way to increase our energy production. Burning woody biomass would help improve the quality of the forests, create new markets and jobs in harvesting and energy production, reduce pollution from fossil fuel burning, and revitalize local economies.

Follow up sources

- Harmful impacts of biomass energy on atmosphere
<http://massenvironmentalenergy.org/docs/biomass%20factsheet%20from%20MEEA.pdf>
- Benefits to forest management
<http://dnrc.mt.gov/forestry/Assistance/Biomass/benefits.asp>
- Biomass Gas & Electric – the Big Green Company <http://www.biggreenenergy.com/>
- Nebraska Forest Service
<http://www.nfs.unl.edu/documents/impactreports/Woody%20Biomass%20Energy.pdf>
- Energy Consumers Edge <http://www.energy-consumers-edge.com/disadvantages-of-biomass.html>



Deliberations Procedures

You represent members of your constituency that is interested in developing a policy regarding the use of woody biomass for energy production. You will meet with individuals who represent different points of view to find a workable solution. Use the following procedure to guide your efforts.

The group's goal is to answer this question: *What is the best policy regarding burning woody biomass for energy production?*

1. Opening Statements

Each person will make an opening statement. Your statement should answer the questions: *What group do I represent? What policy would I like to see enacted?* **Formulate** your opening statement from the material in the "Issues" page. As the other members **describe** their position, take notes on the "Stakeholders' Points of View" chart.

2. Statement of Premises

Think about each person's opening statement. What are the common assumptions your group has with any of the others? As a group, list them at the top of the "Negotiations Records" chart. One assumption is already listed on the recording chart to get you started.

3. Identifying Options

From the "Negotiations Records" chart, the group makes a list of options for how to deal with woody biomass. As a group, address the question "Based on the information in the chart, what are our options for addressing burning woody biomass?" Make a list of options in the left-hand column of the "Costs and Benefits" chart. Come up with five options. (You may find you have more, but it will be difficult to have enough time to explore more than five.)

4. Evaluating Options

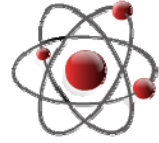
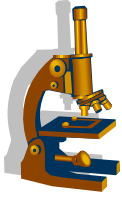
Go through each option and discuss what are the costs and benefits of each. List them on the chart.

5. Deciding on the Best Option

As a group, study the chart and ask yourselves: "Which options have the most benefits? Which have the fewest drawbacks?" **Compare and contrast** the options and determine which is clearly superior to the others. Each group member should have a chance to state which option he or she favors and why. Does one option appear to be the best one?

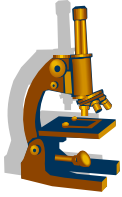
6. Completing the Agreement Form

On your own, complete the "Agreement Form."



Stakeholders' Points of View

Who	Point of View
A forester is concerned about the state of the nation's forests	
Anti-burning activist is concerned about the depletion of the nation's forests	
Energy company executive is interested in incorporating wood-burning plants into the energy grid	
Energy consumer advocate is looking to find inexpensive sources of energy	
Pro-biomass advocate is supporting the use of woody biomass for energy production	



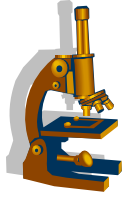
Negotiation Records

Common Assumptions

1. The United States needs to have ample access to energy sources to sustain its economy.
- 2.
- 3.
- 4.

Costs and Benefits

Option	Costs	Benefits
1.		
2.		
3.		
4.		
5.		



**Agreement Form
(To be completed individually)**

Fill in names and roles here of those who are participating in this agreement:

I. Background

The topic is burning woody biomass for energy production. Many states are facing the following problems connected with this issue:

II. Premises

We have reached the following basic understandings, and have based our conversations on them. (e.g. the United States needs to have ample access to energy sources to sustain its economy.) List at least four others.

III. Possible Solutions

We have discussed the following 5 possible solutions.

IV. Solution on which all parties agree:

We have agreed on the following solution to the problems stated above. Explain why you believe it is the best solution.
