Welcome

to the Bioenergy Edition of the *Natural Inquirer*!

What is energy? It is the ability to do work and the ability of certain forces in nature to do work. It is also thought of as the resources humans use to produce power, such as coal, oil, wood, wind, and gas. Everything living needs energy to grow, reproduce, and survive.

People use energy to do even more than grow, reproduce, and survive. People use physical energy to mechanically move from place to place; to heat, cool, and light buildings; to wash clothes; and to operate TVs and computers. As energy needs increase and our regular sources of energy become less available, society is more concerned with finding new sources of energy.

This edition of the *Natural Inquirer* is concerned with a new source of energy. The source of energy explored in this *Natural Inquirer* is really an old source. This type of energy was used before humans began using coal, oil, and gas. Can you guess what that energy source is? If you guessed wood, you are right! But it is actually more than just wood, because it can include a wide variety of plant material. Scientists now call this source of energy biomass, biofuel, or bioenergy.

What is bioenergy? The living (or once-living) material in an area is known as biomass. Bio means life. (Think of biology, the study of life.) Biomass can also refer to plant materials and animal wastes used as a source of fuel. In this case it is known as biofuel or bioenergy. In this edition of the *Natural Inquirer*, we'll explore ways that bioenergy contributes to our energy future.

Bioenergy is studied by scientists in a number of scientific areas. These areas include, for example, wood science; climate change; the development and care of forests (or silviculture [**sil** vuh **kul** chür]); and the production, distribution, and use of goods and services (or economics). Biomass studies help scientists understand how forest products can help address current and future energy questions. For example, bioenergy studies may look at the use of bioenergy for food, building materials, fuel, clothing, and paper.

How do you think the use of bioenergy for building materials can help address energy concerns? You will find out in this edition of the *Natural Inquirer*! Can bioenergy help a school save money so it can spend more on books and computers? You will see! You will also learn whether trees may be a future source of energy, and which trees might be best to heat your home or fuel your car.

Scientists believe we can replace 30 percent of our oil-based fuel with bioenergy. Of this bioenergy, 27 percent could come from forests, and 73 percent could come from agriculture. The use of bioenergy to address energy concerns has one very big advantage. Trees and crops are renewable! In contrast with oil, trees and crops can be planted, cared for, cut and used, and planted, again. The main sources of energy we use now, such as oil, coal, and gas, are not considered renewable because it would take hundreds or thousands of years to replenish their supply.

As you read the articles in this *Natural Inquirer*, think about the many ways forests can help address our energy future.

Educators: Review "Note to Educators" on page 47 before using this *Natural Inquirer*.

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