

# Landfills: A Heap or a Help?

## Biomass Trash

Each day tons and tons of biomass becomes trash and finds its way to garbage dumps, known as **landfills**. People throw away yard trimmings, leftover fruits and vegetables, and flowers. Imagine how much food all the restaurants in the world throw away!?!? It's a lot!!!

## Biomass Trash to Landfill Gas

As this **biomass** trash (organic waste) begins to **decompose** in landfills, it gives off a gas called *landfill gas*. **Landfill gas** is another source of biomass energy. It is approximately 50% methane.

## Run for Your Life! Landfill Gas!

Landfill gas is **stinky** and it can **explode!** Landfill gas has been known to travel under people's houses and explode when they turn on their furnaces. For this reason, the government requires companies who own landfills to control their landfill gas. Usually what is done is that wells are drilled into the landfill in which pipes are inserted. The gas is then drawn out of the pipes and set on fire.

The government also requires companies to control landfill gas because of the amount of methane it contains. Methane is a greenhouse gas, which is believed to contribute to global warming. Methane is not as common in the atmosphere as carbon dioxide, but it is much more powerful. The United States Environmental Protection Agency estimates that there are about 6000 landfills in the United States that are producing methane. Approximately 450-650 billion cubic feet of methane is added to the atmosphere per year because of landfill gas.

## **Landfill Gas for Energy**

Over the last twenty years, advances in technology have changed landfill gas from a health danger to a **renewable** energy source for sale. There are now landfill gas generators. Landfill gas generators have two basic parts: a gas gathering system and a gas extraction plant. The gas gathering system is a series of vertical pipes sunk into the landfill. These pipes bring the gas to the surface and direct it to the gas extraction plant. In the plant, water is removed from the gas before being used to fuel large engines, which drive the generators to produce electricity.

## **Big Thumbs Up for DaimlerChrysler Corporation**

You may drive cars made by DaimlerChrysler Corporation. They make the Dodge Ram pickup trucks and many versions of a mini-van: Dodge Caravan/Grand Caravan, Chrysler Voyager/Grand Voyager, and Town & Country. You can feel good about this because DaimlerChrysler is using landfill gas to provide power for two of its St. Louis, Missouri assembly plants. DaimlerChrysler has two partners. One is the company that owns the landfill, three miles from the plant: Superior Services of Onx of North America. The second is the company that provides the needed equipment to catch the gas and piping it to the plant: Toro Energy.

## **Environmental and Economic Benefits**

- Landfill gas is an alternative energy source that is renewable.
- Extracting it and burning it helps to reduce air pollution and local explosions.
- By burning landfill gas, not only is energy produced, but also keeps methane from entering the atmosphere.
- Using landfill gas also helps to reduce the smell associated with landfills.
- Using more landfill gas means using less fossil fuels and eliminating a source of greenhouse gas emissions.
- Landfill owners make money with the trash.

## **You're an Expert!**

1. Imagine you own a company that sells landfill gas generators. Create a magazine advertisement that describes what a landfill gas generator is and the benefits of using one. Include illustrations.
2. Design an environmental award for DaimlerChrysler. List the various reasons why they are worthy of an award. It may be fun to design the award using the computer. Make it fancy! Try mailing a few to DaimlerChrysler and see if you get a response.

## **Take Action...**

1. Find out how many landfills are in your state. Create a map. Interview the owners and ask if they experience any problems with landfill gas and if they sell it to anyone. Find out if it is being used as an alternative energy source. Report your findings to your classmates.
2. Get serious about encouraging your state to use alternative energy sources. Write an editorial to the newspaper and educate the general public about landfill gas and how it can be put to good use.