CLIMATE CHANGE

Climate change: Many scientists and environmentalists contend that the Earth is becoming warmer, primarily due to what is called the "greenhouse effect." So-called "greenhouse gases" — principally carbon dioxide (CO_2) — collect in the atmosphere, allowing sunlight to reach the Earth but preventing the heat from escaping. Natural gas produces just over half of the CO_2 of coal and about 70 percent that of oil. When electricity is produced by coal- or oil-fired power plants, switching to natural gas appliances can reduce carbon dioxide emissions considerably.

Another way natural gas can be used to address global warming is through gas-powered air conditioning. Many natural gas air conditioning and refrigeration technologies don't use chlorofluorocarbons (CFCs) — significant greenhouse gases that are also thought to play a role in the destruction of the protective upper ozone layer. Using natural gas to cool during summer months also helps to reduce demand on electricity at times when capacity is stretched and utilities are forced to turn to less efficient, and more polluting, technologies to avoid brownouts or service disruptions.

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The United States has plentiful supplies of natural gas at competitive prices. In fact, 93 percent of the gas we consume is produced in this country; most of the rest comes from Canada. It is delivered through an efficient million-mile underground pipeline system, to our homes, businesses and factories.

Natural gas doesn't have to be converted to some other form before it can be used, greatly enhancing its efficiency. Electricity, on the other hand, requires a great deal of energy to create and process. Only one-third of the energy in coal burned at a typical power plant is actually converted to electricity. Additional energy is lost in the transmission of electricity.

Using natural gas directly — to heat homes and water, to cook meals and to dry clothes, and in commercial and industrial applications, can do more than save consumers money. It can make an important contribution to improving the environment.

If you want to learn more about the many ways natural gas can be used to address environmental problems, contact your local gas company office.

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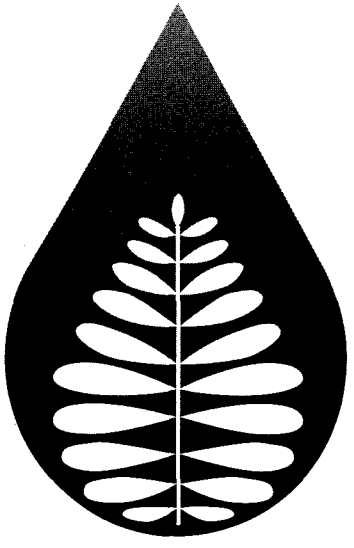
NATURAL GAS

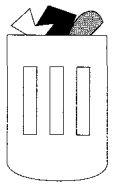
THE ENVIRONMENTAL PROTECTION ENERGY



People around the world are becoming more concerned about pollution problems, and they're looking for answers. Often these problems are associated with the production and use of energy. The issues are complex and so are many of the solutions. One simple and effective response to many of today's environmental concerns, however, is to use natural gas to replace more polluting fuels.

Natural gas burns more cleanly than other fuels because of its simple molecular composition. Coal and oil, on the other hand, contain sulfur, nitrogen and other materials that are released into the atmosphere when they are burned.

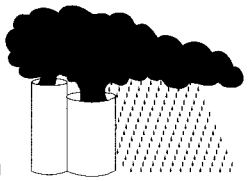
SOLID WASTE



Various natural gas technologies are helping solve a growing waste problem in the United States. With many landfills already overflowing, waste incineration is becoming more widespread. Yet pollutants are produced during incineration. Injecting natural gas into solid waste incinerators helps minimize pollution, cutting it by more than one-half.

Gas can even be produced from garbage — from urban landfills to livestock manure — disposing of waste and creating useful energy at the same time.

ACID RAIN



Acid rain occurs when emissions of sulfur dioxide (SO_2) and nitrogen oxides (NO_x) mix with moisture in the atmosphere and return to the earth as rain, fog or snow.

A major source of these emissions is coal- or oil-fired power plants. Natural gas can be used in a variety of ways to reduce acid rain. For example, gas can be burned simultaneously with coal or oil in a process called "co-firing." This process can reduce emissions of SO_2 and NO_x significantly. Natural gas also can be injected into a boiler to "reburn" emissions, reducing NO_x by up to 60 percent. Natural gas can be substituted for dirtier fuels on a seasonal basis during the spring, summer and fall months when acid rain levels are the highest and excess capacity exists in the gas delivery system.

New natural gas technologies for generating electricity, such as high-efficiency turbine systems, greatly enhance energy efficiency and reduce pollution, while providing electric utilities and industrial customers an economical option for addressing the tough environmental decisions they face. Gas-fueled "cogeneration," where steam created by the production of electricity is captured and used, consumes 25 percent less energy than the traditional combination of a coal-fired electric plant and an oil-fired boiler producing steam. In addition, the gas-fueled "co-generator" emits less than 1 percent of the SO_2 and one-half of the NO_x of the coal- and oil-based system that already is using pollution control equipment.

These industrial applications aren't the only ways natural gas can be used to reduce pollutants that cause acid rain. Wood stoves and fireplaces create a great deal of pollution. Natural gas fireplaces reduce emissions, while retaining the appearance and warmth of a traditional fireplace.

URBAN SMOG

Smog is composed of a combination of pollutants, most notably ground-level ozone, which is caused primarily by exhaust from cars, trucks and buses. Carbon monoxide is also a major pollution problem for most large American cities, where high concentrations of this odorless gas can cause serious health problems.

To date, auto pollution reductions have been achieved by adding special equipment to vehicles and improving fuel efficiency. With the number of vehicles on the streets continuing to rise, policymakers are looking at cleaner fuels as a way to further reduce auto pollution. More than 700,000 natural gas vehicles (NGVs) are in use around the world, including 30,000 in the United States. Vehicles built to run on natural gas can reduce carbon monoxide emissions about 90 percent, smog-producing hydrocarbons by over 80 percent, and airborne toxics by 90 percent, compared with gasoline vehicles. Natural gas is becoming especially popular in buses and other "fleet" vehicles that can share the same refueling facility until more public natural gas refueling facilities open. In some Canadian cities, residents are trying out home compressors that allow them to refuel vehicles from the same gas line that serves their furnaces and appliances. These compressors are available in the United States, too.