

Action, not talk: cogeneration and climate

Among the more promising approaches to addressing the risks of climate change are those that rely upon economically attractive actions and advanced technology.

One good example is the increasing use of cogeneration units at major industrial facilities such as petroleum refineries and chemical plants. These cogeneration units make economic sense, save energy and reduce carbon emissions.

Our facilities use large amounts of electricity to run pumps, compressors, instruments and lights, and use steam to transform raw materials into consumer products. Traditional practice has been to generate steam by burning oil and gas, and to buy electricity from outside power companies. However, conventional power generation entails large energy losses since otherwise useful energy escapes as hot gases or steam, is used up by friction, is lost in transmission over power lines, or radiates away from hot equipment. Overall, only a small fraction of the energy theoretically available can be put to "work."

The results: higher energy use, higher costs, greater emissions of carbon dioxide and other byproducts of combustion.

Advances in energy management and turbine technology have transformed this picture. Increasingly, refineries and petrochemical plants are "cogenerating" power. This means that a fuel, usually natural gas, is used directly in a large power turbine that generates electricity for running the plant. The hot gases emitted

from the turbine can then be used to produce hot water and steam without consuming other fuel for that purpose.

The overall efficiency of this process can be twice as high as older approaches, saving both energy and money. Moreover, since natural gas is usually the fuel of choice, carbon dioxide and other emissions are inherently lower.

ExxonMobil is a leader in the installation of cogeneration. The chart shows that we can

generate the equivalent of 2,300 megawatts of electricity. Cogeneration now meets about 70 percent of our refining and chemical plant needs.

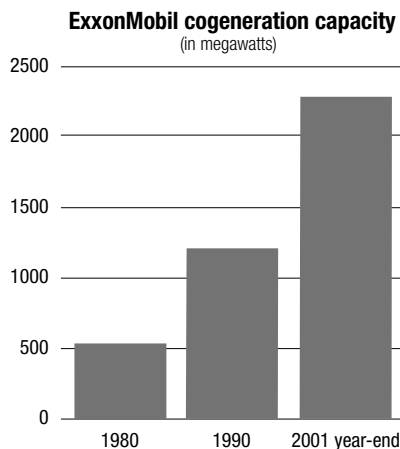
Our cogeneration saves the energy equivalent to more than the annual residential electricity needs of Maine and New Hampshire.

The energy saved is about one-fourth of that generated as electricity by all the wind and solar power facilities worldwide.

The capacity we have in place has reduced carbon dioxide emissions by almost 6 million tons a year from what they would otherwise have been.

Another 1000 megawatts of cogeneration is under development, and our ultimate cogeneration potential is even greater.

This is but one example of what can be done to save energy and reduce both costs and emissions. With time, technology and a reliance on voluntary action an enormous amount of progress has been and will be made, to the benefit of companies, consumers and the environment.



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