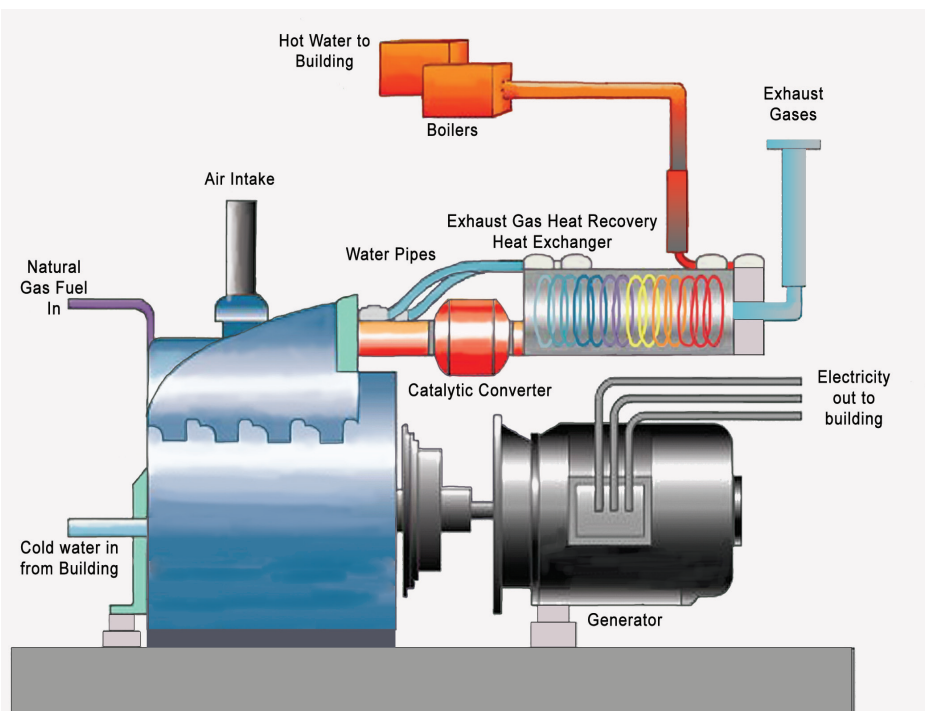


COGENERATION BENEFITS & RETURN ON INVESTMENT

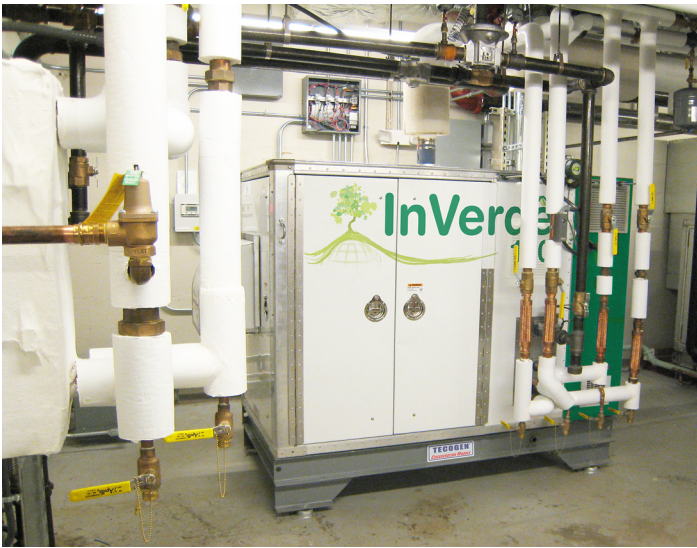
WHAT IS COGENERATION

Cogeneration, also called CHP or Combined Heat and Power, is an integrated energy system that can be used in commercial buildings, industrial buildings, and residential homes to create heat and hot water, as well as electricity. Cogeneration, because of its efficiency, is considered one of the most eco-friendly energy sources. Variations, such as a Trigeneration system can create heat, hot water, electricity, with the addition of cooling.

In conventional water heaters and boilers, fuel is used to create hot water only. During this normal process the excess energy is wasted and exhausted out a chimney. Through cogeneration, the high-temperature combustion produces both hot water as well as electric power. The performance is comparable to conventional water heaters, but in addition, 26% of the fuel's energy is converted into usable electrical energy.



In cogeneration systems, gas is burned in an efficient internal combustion engine like that in a car or truck. The engine drives a generator to produce electricity while simultaneously making hot water from rejected engine heat, that hot water can be used to heat your building, domestic hot water, pool, and process requirements. Think of the energy savings, when the system creating your heat and hot water, can power your building at no extra cost.



Creating your own electricity is also a great benefit to the environment. Generally, when utility provided electricity is generated, only about 1/3 of the fuel is converted to electricity. The other 2/3 of the fuel and heat goes up the smoke stack and into the environment.

Cogeneration uses that normally wasted heat to make hot water to heat your building, processes and run absorption cooling. Also, with electricity being produced right where it is needed, it does not need to travel from utility companies where a portion of the energy is lost in transit.

HISTORY

The concept of cogeneration was first developed in the 18th century with the development of the industrial revolution. In the mid-twentieth century it lost popularity because nuclear power and electricity plants were cheaper to run. But in the 1970's and the rising energy crisis, cogeneration had a come back. People realized that the price of oil was only going to continue to rise and alternatives were needed. Currently with advancement in technologies, the cost of cogeneration is a fraction of what it once was. Furthermore, laws were developed by the Public Utility Regulated Policy Act, which requires utility companies to buy back excess energy produced from cogeneration.

BENEFITS OF COGENERATION

Cogeneration systems are cost-effective, highly reliable, easy to maintain, compact and quiet. Cogeneration has the quickest Return-on-Investment of any energy savings program, with many systems paying for themselves within 2 years. An added benefit of cogeneration is that the more energy you use, the quicker the return on investment. There are many federal and state incentives and rebates currently available to make changing your system over to cogeneration even more affordable; there is a Federal tax deduction for energy efficient commercial buildings that vary from \$.30 - \$1.80 per square foot; and a business energy investment tax credit of 10%.

Controlled Air, Inc. can provide cogeneration units ranging in size from 30 kW to 650 kW. Applications include hospitals, schools and colleges, athletic clubs, swimming pools, hotels & motels, apartments and condos and food & beverage environments. For more information about cogeneration or to find out how it can help you save money on utilities call Controlled Air.

