



# COMBINED HEAT AND POWER PLANT POWERS SAVINGS FOR ARGONNE

## Construction of Argonne’s Combined Heat and Power (CHP) plant was completed in the fall of 2016.

The 6.3-megawatt CHP plant provides electricity and steam heat for the laboratory’s campus. It replaced aging equipment and modernized critical infrastructure.

CHP plants like the one constructed at Argonne flow natural gas through a gas turbine generator and utilize a heat recovery steam generator to produce steam. Electricity is produced as a byproduct of this process. This electricity is nearly “free,” because the steam was going to be created for heating purposes, whether or not it was used for anything else.

The CHP plant was funded through a multimillion-dollar Energy Savings Performance Contract (ESPC). As opposed to using U.S. Department of Energy allocated funding, Argonne utilized third-party financing through NORESCO, an energy services company. This allows the project to be paid for over time as the energy savings from operation of the plant are realized. Funding from a third party, such as an ESPC, allows Argonne’s allocated funding to be spent on other critical projects that may not necessarily have an adequate energy savings payback.



Argonne’s combined heat and power plant.

The CHP plant is designed to provide 20% of Argonne’s electricity needs and 80% of its steam heat throughout the year. It provided a little over \$3 million in energy savings in its first year of operation and is on track to save more than \$50 million within its first 15 years. Argonne’s CHP plant helps reduce the laboratory’s carbon footprint. This saves 24,000 metric tons of greenhouse gas emissions annually, the equivalent of about 5,000 cars removed from the road. In its first 9 months of operation, the CHP plant produced over 31 million kWh of electrical energy as a byproduct of site steam production.

Argonne is now able to produce more

of its own electricity, reducing its dependence on the power company and protecting the laboratory from potential power grid interruptions. Having this alternative electricity source is important for the laboratory. Experiments can run all day or night on some of the most advanced equipment in the world, and they require uninterrupted power to function properly. In addition, constructing the CHP plant has allowed the steam plant's oldest, most inefficient, most unreliable boiler to be decommissioned. This reduces the risk that the legacy boiler will fail upon demand and cause site

steam pressure drop unexpectedly, which could affect the heating systems of most buildings on the Argonne campus.

Argonne continues to explore integrated strategies such as CHP for addressing infrastructure needs, saving the laboratory money, and reducing the environmental impact of its world-class science and engineering research facilities.

**FOR MORE INFORMATION  
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