With the ever-changing landscape of utilities and energy in Illinois, one topic that has recently gained traction is the use of heat pump systems. In addition to their potential to save consumers money, heat pumps are frequently cited as a way to promote more equitable changes in energy policy and the decarbonization of buildings around the state.

**What is a heat pump?**

Heat pump systems are another method for heating and cooling your home in a more energy-efficient and cost-effective manner. Much like a refrigerator, heat pump systems utilize electricity to move heat from cool spaces to warm spaces and vice versa. Because heat pump systems move heat rather than generate it, they are a more economically sound way of warming your home.

**Are there different types of heat pumps?**

The most common systems are air-to-air pumps, which transfer heat between the inside of your home and the outside air. Utilized in many places around the southern United States, air-to-air systems are increasingly common due to the development of technology that allows the systems to operate in subfreezing temperatures. Air-to-air pumps are easy to install and will work regardless of whether the home has existing forced air systems.

Geothermal heat pumps are high efficiency heating and cooling technology that uses the earth’s free energy and moves hot and cold air between your home and the ground or a nearby water source like a river. The U.S. Environmental Protection Agency says that geothermal heat pumps are the most efficient heating and cooling technology available today. Today’s geothermal heat pump systems offer 500 percent efficiency or more. The reason is that the systems do not burn fuel for heat – rather, they just move the heat from the earth, bringing it indoors to heat homes in the winter, and providing an effective place to transfer heat into the ground during the summer. Geothermal systems typically cost more upfront to install, because most systems utilize a closed loop system of pipes in the ground. But because the ground temperature is a constant 50-plus degrees year round, geothermal heat pumps are the most effective way to heat and cool your home. These systems typically reduce energy usage by 30-60 percent or more.

**Why are heat pump systems important?**

Heat pumps can help eliminate carbon pollution that causes climate change. Heat pumps use electricity rather than burning gas on-site at your home or business. As the grid changes and uses more wind and solar and less coal and gas, the pollution associated with heat pumps will continue to decrease as well. Heat pumps already have a pollution profile better than gas furnaces or boilers.

In addition to protecting the environment, heat pump systems are more cost-effective for the majority of consumers around the state. Heat pumps can help save a significant amount of money over the long-term, and these systems are emerging as a reliable alternative to utility-owned natural gas companies, which have raised costs significantly in recent years.

While geothermal systems may cost more upfront, the systems pay for themselves as the consumer uses less energy to heat their home.

Modern infrastructure, particularly the development of all-electric homes and buildings, means that heat pump systems are increasingly common around the U.S. While many people may equate this type of construction with major cities, a recent Rocky Mountain Institute (RMI) study revealed that rural Midwesterners could save up to $14,000 over 15 years by switching from propane furnaces to electric heat pumps.

A more recent version of that RMI study found that newly constructed all-electric homes are cheaper to build and operate across the country, including the Midwest.

**Who can use a heat pump system?**

Fortunately, the technology behind heat pump systems is continuously advancing, making it more affordable for consumers.
If you are interested in obtaining your own heat pump system, an excellent place to start is the U.S. Department of Energy’s (DOE) “Heat Pump Systems” page. The DOE website provides valuable information regarding the ins and outs of the various heat pump systems currently available. In addition, Consumer Reports outlines a number of considerations worth mulling over before buying a heat pump.