Benefits of Heat Pumps
- Provide both heating and cooling
- No on-site combustion
- No supplemental heating required
- Significantly more efficient than traditional heating sources
- Lower environmental impact than fossil fuel systems (especially if paired with solar)

Resources
- ccetompkins.org/energy
- www.getyourgreenbacktompkins.org/renewable-heat/
- HeatSmartTompkins.com
- www.energy.gov

Whether you are replacing the heating system in your home or business or building from scratch, heat pumps might be right for you.

Heat pumps use electricity and refrigerants to transfer heat between the inside of your home and the air or ground outside, unlike traditional home heating systems, which generate heat via combustion of fossil fuels.

Heat pumps are the heating and cooling for the 21st century! All heat pumps have a high energy return on investment and if paired with solar, can be a fully renewable, zero carbon solution.

The relatively constant ground temperature throughout the year allows ground source heat pumps (GSHPs) to maintain higher efficiencies even when the outdoor air temperature is very hot or cold. And in recent years, technological advances in air source heat pumps (ASHPs) have made them an excellent option even in winter in the Finger Lakes.

When contemplating purchasing heat pumps, there are a few factors to consider, including longevity of the system, installation prices, and availability of land. Read on to explore your options!
How does a heat pump work? Just like your refrigerator!

Air Source Heat Pump (ASHP)

ASHPs use electricity and refrigerants to extract heat energy from the outside air and use it to heat your home. They can be installed using existing ductwork or as a ductless (mini-split) unit. ASHPs are comprised of an outdoor unit, which contains the heat pump components, and indoor units (heads)(pictured below). They are connected via a tube filled with refrigerants and use electricity to function.

Ground Source Heat Pump (GSHP)

GSHPs use the constant temperature of the ground to extract heat. This increases their efficiency and longevity. They require installing either vertical or horizontal ground loops filled with refrigerant on your property, which may be most convenient to install while building. Soil quality and available land onsite may affect the type of ground loop system you require.

Heat Pump Water Heater (HPWHs)

Heat Pump Water Heaters use the same technology as air source heat pumps, but instead heat domestic hot water. HPWHs are a great replacement for your fossil fuel water heater, and are 2.5 times as efficient as electric resistance heaters. Even though they cost more up-front, they can save you money over time. They slightly cool, and also dehumidify, the space they are stored in, so they’re best placed in basements. Since they require a compressor, they create more noise than conventional water heaters.