Geothermal heat pumps use electricity to provide clean, efficient heating and cooling.

- **Ground source**, or Geothermal, systems provide comfort all winter across New York State
- **Hydronic systems** send warm water to heating devices throughout the home
- **Healthy and safe** with no fuels or carbon monoxide risks
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with low greenhouse gas emissions
- **Versatile** solution for new or existing homes

**Insulation and air sealing** are often important first steps. This saves money, improves comfort, and makes heat pumps more effective.

**Baseboard or panel heaters** come in many shapes and sizes to heat different rooms.

**Fan coils** can provide cooling and additional heating. They can serve individual rooms or be ducted to several rooms.

**Window and door** upgrades can improve comfort and efficiency.

**Pipes** carry warm water to heating devices throughout the home. Copper, iron, and certain plastics are viable pipe materials.

**Radiant floors** heat rooms using warm water in pipes beneath the floor.

**Electric service** may need to be upgraded to support heat pumps. Ask your installer to evaluate your service.

**Ground Loop** Underground pipes exchange heat with the ground.

**The heat pump** extracts heat from the ground loop to make warm water. In the summer, it operates in reverse to provide cooling.

**HEAT PUMP PLANNER MORE ABOUT GROUND SOURCE HEAT PUMPS >**
Ground Source, Hydronic Heat Pumps

**Key Considerations**

**Features**
- Quiet with no outdoor condensers
- Can also provide hot water for bathing, washing, cooking, etc.
- Comfort from warm water heat throughout the home
- Air ducts are not necessary

**Heat Delivery Options**

Heat pumps provide warm water rather than hot water, and conventional baseboards and radiators are often not sufficient. Heating devices designed for warm water are needed to provide comfort. Your installer can suggest the best heat delivery options based on your heating needs.

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**Ask Your Installer**

- Will proper heating and cooling get to each space? **Ask for room-by-room heating and cooling calculations.**
- Do I need to upgrade radiators or baseboards?
- Will the system use “outdoor reset” control to optimize efficiency and comfort?
- How long will installation take? Where and when will you need access?
- Who is responsible for landscaping after the ground loop is installed?
- How do I operate my system for optimal comfort and efficiency?
- What annual maintenance is required?
- What is the expected lifespan and warranty?

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**Cost Considerations**

**Installation Cost**
- Check with NYSERDA, your electric company, and installer for incentives and financing options. Larger incentives may be available for eligible customers.
- Ground source heat pumps may have a high upfront cost but will operate efficiently over a long lifetime.
- Cost varies with region, installer experience, heat delivery options, system size and manufacturer.

**Operating Cost**
- Your overall heating costs will likely decrease if switching from oil, propane or electric baseboard.
- If you previously heated with fuel, don’t be surprised to see electric bills rise. Your gas, oil, or propane bills will drop or disappear.
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs.

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This document is part of NYSERDA’s Heat Pump Planner. Learn more at: nyserda.ny.gov/HeatPumpPlanner

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