

Ground Source Heat Pump for a Two-Story Home

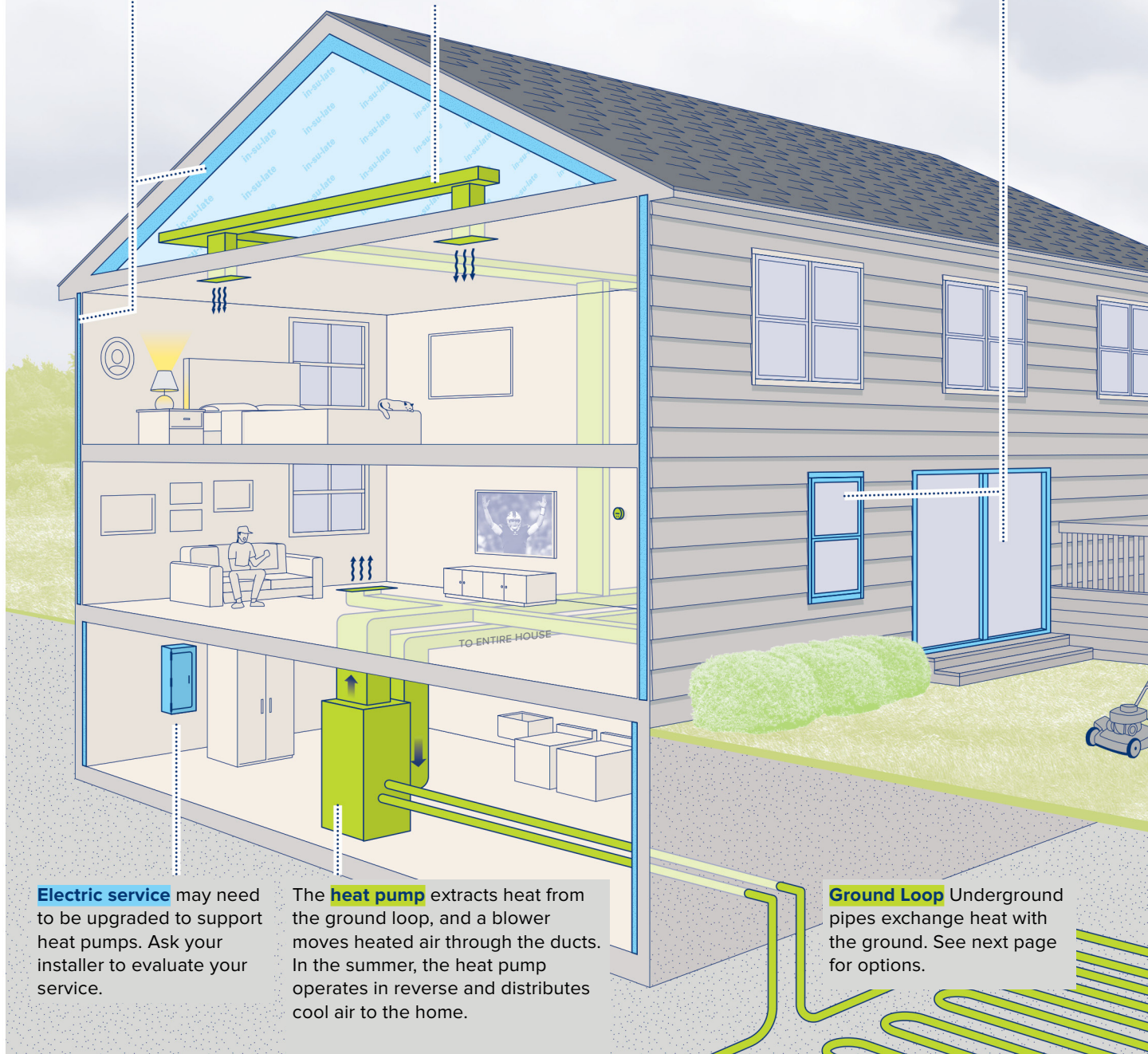
Geothermal Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Ground source**, or Geothermal, systems heat and cool homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, and no window air conditioners
- **Affordable** with rebates, financing options, or operating costs
- **Clean and green** with reduced 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.

Ducts distribute warm or cool air to rooms. Existing ducts can often be modified and reused. Ducts work best in insulated spaces. Ask your installer to pay special attention to insulation and duct sealing.

Window and door upgrades can improve comfort and efficiency.



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

The **heat pump** extracts heat from the ground loop, and a blower moves heated air through the ducts. In the summer, the heat pump operates in reverse and distributes cool air to the home.

Ground Loop Underground pipes exchange heat with the ground. See next page for options.

Features

- Highest efficiency with lowest operating costs
- Quiet with no outdoor condensers or window air conditioners
- Heating and cooling distributed throughout the home with new or existing ducts
- Can also provide water heating



Vertical wells are hundreds of feet deep.

Ground Loop Types

Underground pipes exchange heat between the heat pump and the ground. Your installer will determine the proper type and size of ground loop based on:

- Land area available
- Type of rock or soil
- Heating and cooling needs of the home

There are two main types of loops.



Horizontal fields have coils placed in a much more shallow but larger area.

Ask Your Installer

- Will proper heating and cooling get to each space?
Ask for room-by-room heating and cooling calculations.
- Are my ducts big enough for a heat pump? What modifications are needed?
- 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 maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

Cost Considerations

Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- While ground source heat pumps are the most efficient, they are also more expensive to install
- Cost varies with region, installation complexity, installer experience, 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; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



NYS Clean Heat