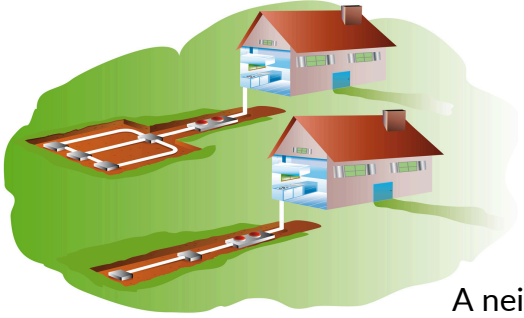


Potential Networked Geothermal Project in Countryside School Neighborhood



Green Newton

Green Newton is reaching out to people in your neighborhood to explore the potential for a geothermal network in several Newton neighborhoods. Green Newton is looking for your feedback on whether and under what conditions homeowners might be interested in participating in a neighborhood networked geothermal system. Geothermal systems use water from deep wells to heat and cool buildings in a highly efficient manner, free of greenhouse gas emissions from fossil fuels. Both the new Countryside School and the Franklin School will be using geothermal systems for heating and cooling.



What is a neighborhood networked geothermal system?

A neighborhood networked geothermal system is a system of connected heat pumps that use energy from a system of wells to deliver heating and cooling to multiple connected buildings. The ground below the frost line maintains a consistent temperature of 50 to 55 degrees year-round. This source of tempered water (geothermal energy) from the ground greatly improves the efficiency even of air-to-air heat pumps, such as the mini splits that are becoming common in some homes and offices and which are themselves highly energy efficient.

Newly rebuilt schools in Newton such as Countryside and Franklin are being built with geothermal systems and ground source heat pumps. In a neighborhood networked geothermal system, a new system designed for an adjacent neighborhood could be connected to these schools' geothermal systems to supplement the neighborhood system and optimize the economics and efficiency of that system.

Networked geothermal systems are becoming increasingly popular on college campuses, like Amherst, Princeton and Carleton College.

Why is networked geothermal important to homeowners?

Networked geothermal has a number of benefits, including that it:

- Is safer and healthier than home heating systems that burn fuels like gas, oil or propane;
- Uses less electricity than air source heat pumps, which are similar in their effectiveness from a safety and health perspective;
- Provides efficient air conditioning in addition to heating;
- Helps reduce pollution by minimizing fossil fuels usage.



What are other advantages of networked geothermal?

Networked geothermal is better than individual geothermal systems because networked geothermal:

- Provides the same benefits with lower costs due to economies of scale and the need to drill fewer wells;
- Uses less energy when diverse building types are networked together, such as schools and homes.

Potential Networked Geothermal Pilot in Newton Countryside Neighborhood

How would a networked geothermal system work technically?

- Participating homeowners would replace their heating systems with heat pumps for heating and cooling;
- Home heat pumps would be connected to new water pipes in the street;
- Additional geothermal wells would be drilled in the street;
- New water pipes in the street could be connected to the school's geothermal system;
- Homes could retain their gas stoves if desired.



What happens to the homeowner's annual energy costs?

Annual energy costs are impossible to predict or guarantee at this time. But for the concept to succeed, the system needs to be configured so that annual energy costs are similar to or lower than energy costs for homeowners who do not join the system. Homeowner conversion costs for new equipment and energy costs will be determined as part of this process before customers are asked to make a commitment to participate in a neighborhood networked geothermal system. If this project proceeds, it will help provide information about networked geothermal costs for other projects in the future.



Who would pay for the installation costs?

All work in the public way would be paid for by the operator. Details regarding home costs will not be known until Green Newton learns more about the level of interest among homeowners and the role of the system operator. We understand that homeowner interest level depends greatly on minimizing or eliminating the up-front cost as well as the operating cost.

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What happens next?



If you think you may be interested in a networked geothermal project:

- Indicate your interest - with no obligation - by completing a form on Green Newton's website: greennewton.org/home-volunteer.
- Agree to have a technician survey your home's heating and cooling system.

If there is significant interest, Green Newton will:

- Develop a report to describe the scope of the potential system;
- Meet with City officials and City Council members to present Green Newton's plan to move forward;
- Meet with National Grid to discuss developing a neighborhood networked geothermal system;
- Identify other qualified companies, through a vetting process, that would be interested in providing proposals for the development of a neighborhood networked geothermal system;
- Determine if the connection of a neighborhood geothermal system to a school geothermal system is feasible and, if so, how that would be implemented and managed;
- If there are enough potential participants, Green Newton will develop and issue a Request for Proposals from National Grid and the qualified companies, which addresses all aspects of the development and operation of the neighborhood networked geothermal system including: the system design, project financing, the installation of equipment in each home, the construction schedule for the geothermal system, whether it will need to be connected to the geothermal system of the schools, the cost and billing arrangements for each homeowner, the process and schedule for tying in each home to the system, the company's obligation and plan to maintain and operate the system for the long term.
- Up to this point, homeowners are under no obligation to continue.

If the project is accepted by enough of the potential participants, the operator that is chosen for the project will:

- Finalize the financial details with homeowners, and complete contracts with each homeowner;
- Obtain all necessary City and State approvals and permits;
- Construct the neighborhood networked geothermal system, and possible connection to the school system;
- Convert homes to heat pumps.

