

Massachusetts Climate Careers: Powering the Future Networked Geothermal Projects

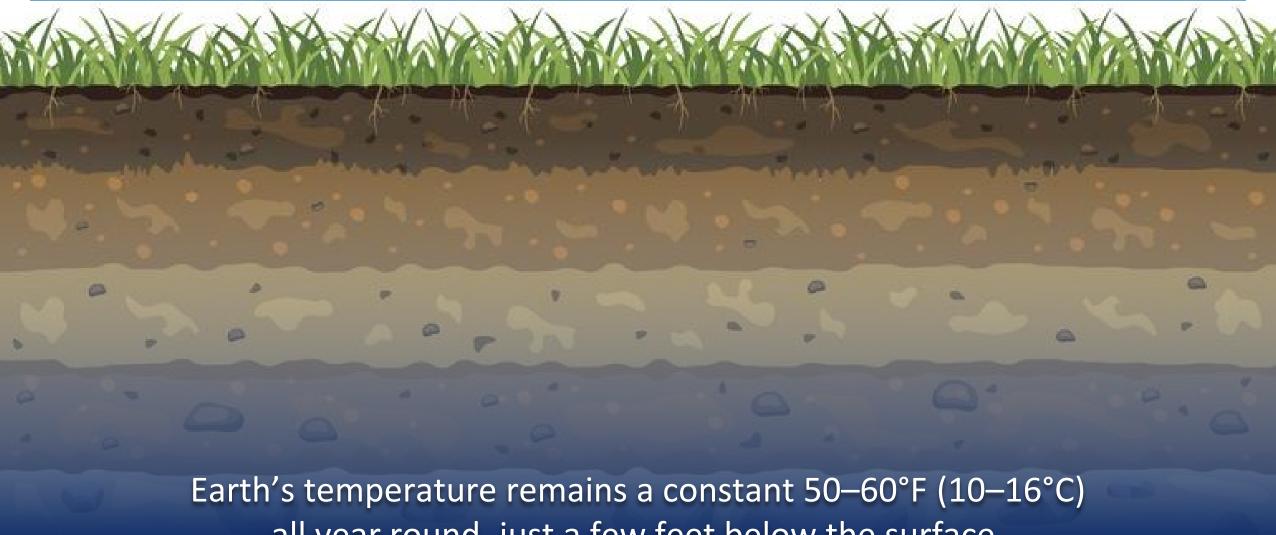


Opening Activity



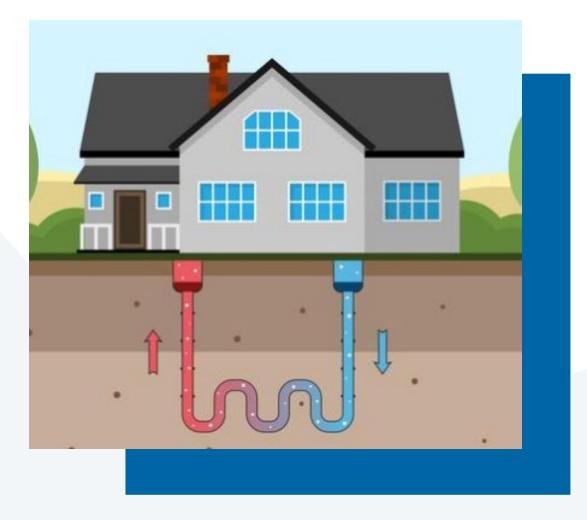
Why are caves still cool in the summer and warm in the winter?

Climate Solutions Hidden Underground



all year round, just a few feet below the surface.





Geothermal Systems

- Transfer heat from the ground to buildings in winter
- Send heat back into the ground in summer







In what ways will the use of geothermal energy make our communities cleaner and healthier?







When you complete this lesson, you'll be able to:

- 1. Explore the science behind networked geothermal systems and how they can contribute to clean heating.
- 2. Identify examples of climate-critical professionals who work together to design and implement networked geothermal systems.
- 3. Discuss the steps that communities take to explore a solution, such as networked geothermal systems.





Today's Agenda

- The Big Question and My Climate Goals
- Climate Watch and Discussion
- Networked Geothermal Systems
- Warmstone, MA Fictional Case Study
- Takeaways and Closing



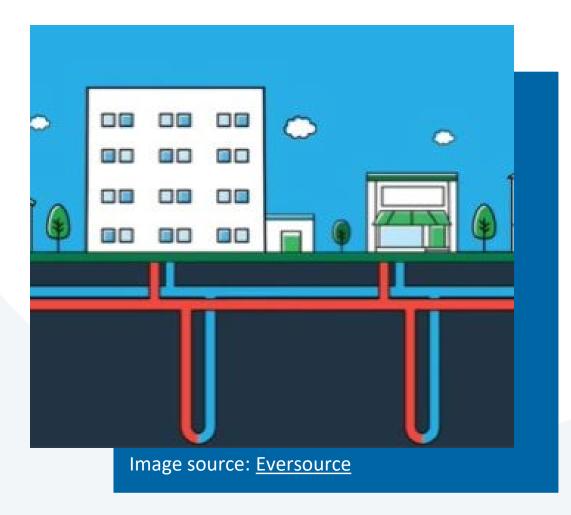
Geothermal Heroes

Essential geothermal project roles:

- **1. Planners**: Work with the community to get everyone on board
- 2. Engineers: Design systems that use the Earth's natural heat
- **3. Electricians**: Connect geothermal energy systems to the energy grid







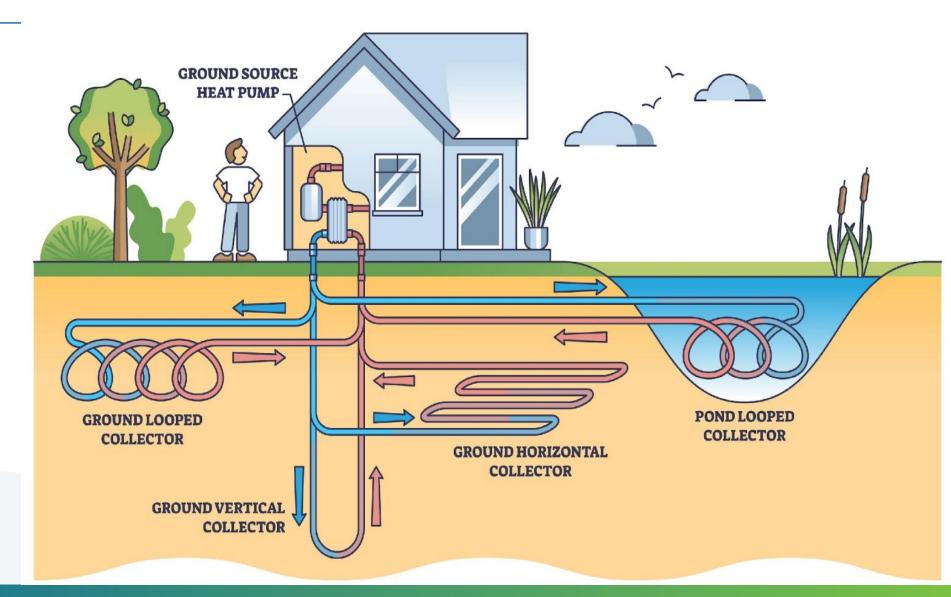
Networked Geothermal Systems

Networked geothermal systems connect multiple buildings to a single, shared network of pipes called a geothermal loop.

- Cost-effective
- Energy efficient
- Environmentally friendly

System Types

GROUND SOURCE HEAT PUMP TYPES





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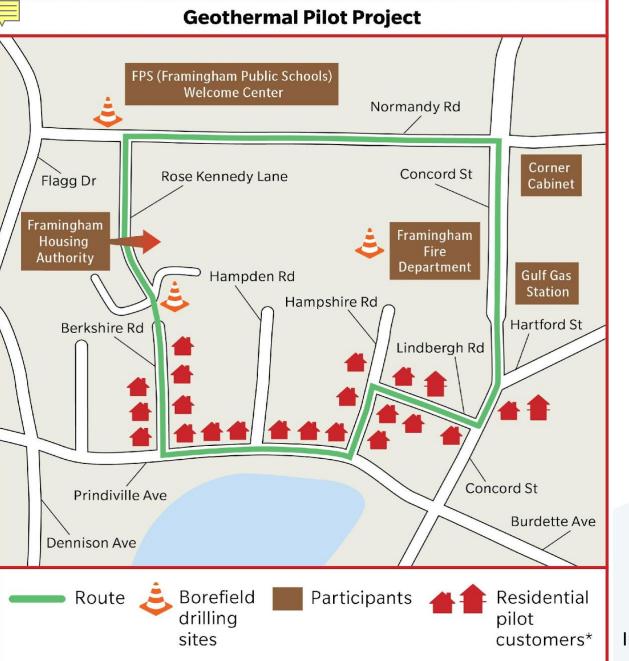
Climate Watch: Video





- 1. How is this project using existing infrastructure to speed up the transition to clean energy? Where else might that tactic work?
- 2. Several professions and trades were mentioned in the video. Which ones stood out to you or interested you?
- 3. The Framingham project relied heavily on community support. What are some ways to rally community interest and support for new clean energy projects like this geothermal project?





*Representation of 24 residential systems (20 single-family households, 2 two-family households).

Framingham, MA

Massachusetts is leading the way with geothermal systems!

Three key aspects:

- 1. Site selection
- 2. Community engagement
- 3. Installation and implementation

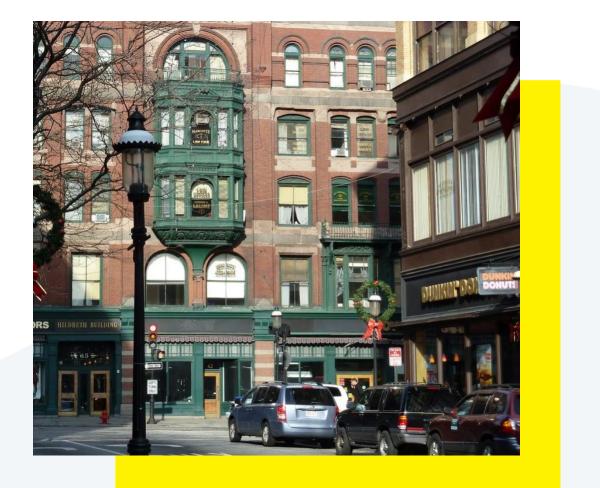
Image source: Eversource

Case Study: Warmstone, MA Geothermal Project

Read and analyze the case study on your worksheet.

- Why is Warmstone interested in geothermal energy over other energy sources?
- What steps did Warmstone take to prepare its community for a geothermal project?
- What are some of the possible impacts of geothermal energy on this community?

Present your findings to the class!







Key Points

- Geothermal energy is a clean and renewable solution.
- Community engagement and education are crucial to the success of geothermal and similar projects.
- Geothermal projects have environmental, economic, and social benefits.
- Geothermal projects require careful planning, and conducting feasibility studies and pilots may help determine the best locations and practices for longterm success.





What kinds of community outreach or education would be necessary to gain support for a geothermal system in your community?







