

Networked Geothermal Projects

Opening Activity: Underground Discussion

Notes:

The Big Question

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

My Climate Goals

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.

Notes:

Case Study: Lowell, MA Geothermal Project

Instructions

Read the information below about the geothermal project in Lowell, MA. Work with your group to analyze this information and answer the questions provided. Identify the primary reasons for exploring geothermal energy, the preparations made by the city, and the potential effects on the community. Be prepared to present your findings to the class.

The Lowell, MA Geothermal Project

Lowell is a historic city in Massachusetts with a population eager to embrace clean energy technologies. Faced with rising energy costs and a need to reduce greenhouse gas emissions, Lowell has turned its attention to geothermal energy. Unlike traditional energy sources, geothermal uses the earth's natural heat to provide efficient heating and cooling, making it a renewable and sustainable option.

The city has taken several steps to explore and implement geothermal energy. First, Lowell worked with experts to study the local geology and assess whether geothermal systems would be effective in the area. These studies helped identify specific neighborhoods where a geothermal system could have the greatest impact. To build support, Lowell hosted community forums where residents could learn about geothermal energy and ask questions. These events also allowed the city to gather input from the community about their energy needs and concerns.

In addition to public engagement, Lowell launched a pilot program to test geothermal systems in select locations. Data from this pilot will help determine the feasibility of expanding geothermal energy systems to more areas of the city. Lowell also partnered with utility companies to explore how geothermal energy could be integrated into the existing energy infrastructure.

Lowell sees geothermal energy as an opportunity to address both environmental and economic challenges. By reducing reliance on fossil fuels, the city can cut emissions and improve air quality. Geothermal systems also offer long-term cost savings for residents and businesses by stabilizing heating and cooling expenses. Additionally, Lowell hopes the project will create new job opportunities in the clean energy sector and position the city as a leader in innovative energy solutions.

Geothermal energy could have significant benefits for the community, but the city recognizes the importance of ongoing dialogue and flexibility as the project evolves. The results of the pilot program and feedback from the community will guide Lowell's next steps in its transition to a cleaner, more sustainable energy future.

Discussion Prompts

Why is Lowell interested in geothermal energy more than other energy sources?

What steps did Lowell take to prepare their community for geothermal energy?

What are some of the possible impacts of geothermal energy on this community?

What other questions do you have about the Lowell, MA geothermal project?

Be prepared to share your findings with the rest of the class by giving a short presentation with your group. Highlight the key points about Lowell's geothermal project and explain why it's an important step toward clean energy. Note what Lowell did well that could be used as a model for other communities, and share questions you may still have about the project or similar community energy projects.

Lesson 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 long-term success.

Additional key points:

Closing Activity

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

Who could be allies or advocates in gaining that community support?

Careers of interest you heard about in this lesson: