

Adopting Geothermal Heat Pumps In Tucson

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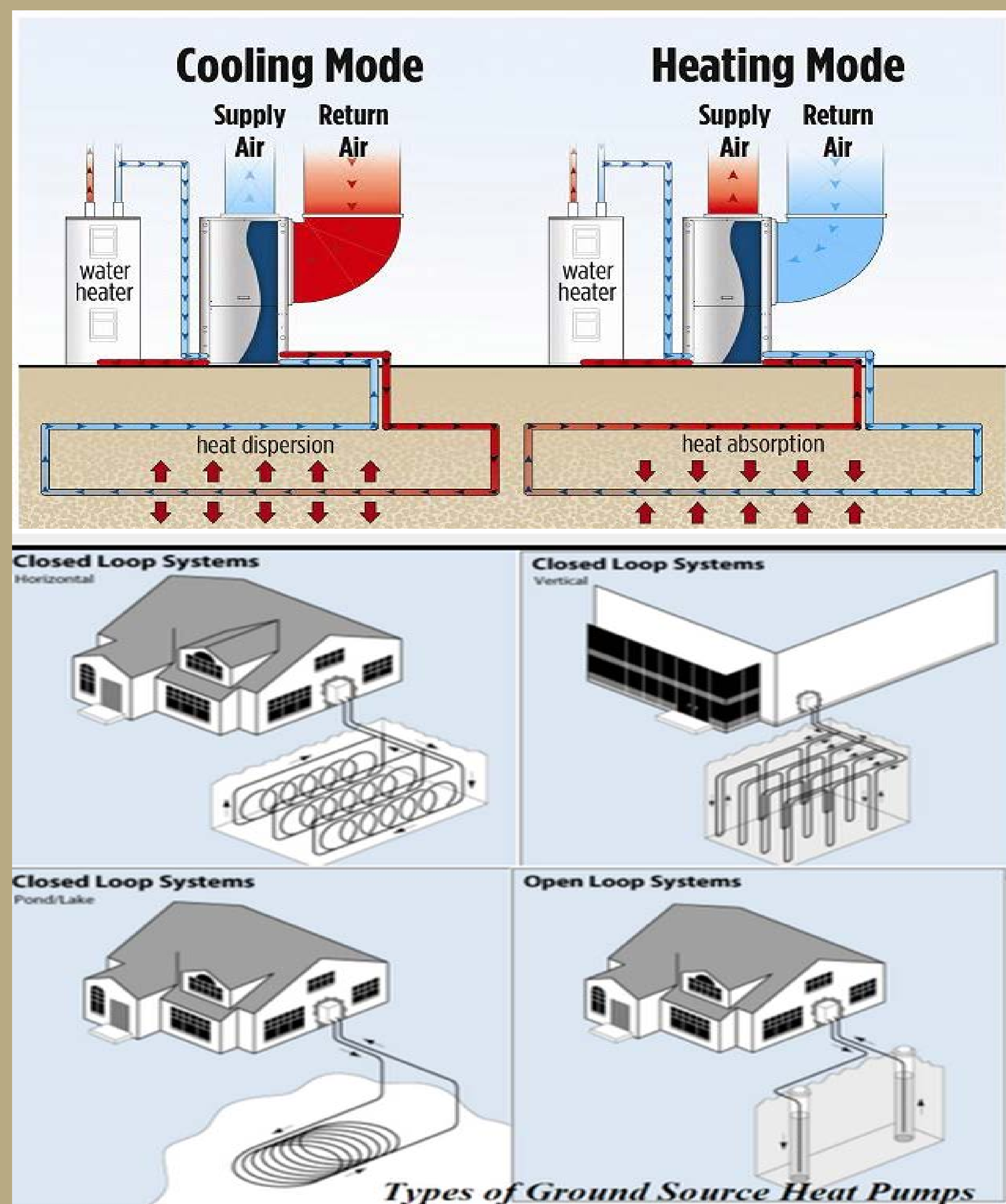
Sustainable Built Environments

Research Question –

- As Earth's climate warms, fossil fuel depletion occurs, and air pollution increases, this question is more important than ever:
- What are the reasons why people in Tucson are not adopting geothermal energy?
- What are the potential benefits of adopting geothermal?

Understanding Geothermal - Benefits

- Geothermal heat pumps do not burn fossil fuels for heat production, they generate far fewer greenhouse gas emissions than a conventional furnace
- System life is estimated at 12-15 years for the inside components and 50+ years for the ground loop.
- Geothermal gives you free hot water



Method -

Research Design

- Cross-sectional Study
- Create an online questionnaire
- Create an Energy Analysis
- Goal - Survey at least 100 people
- Questions related to heating and cooling of their homes, as well as their awareness of geothermal potential.

Analysis

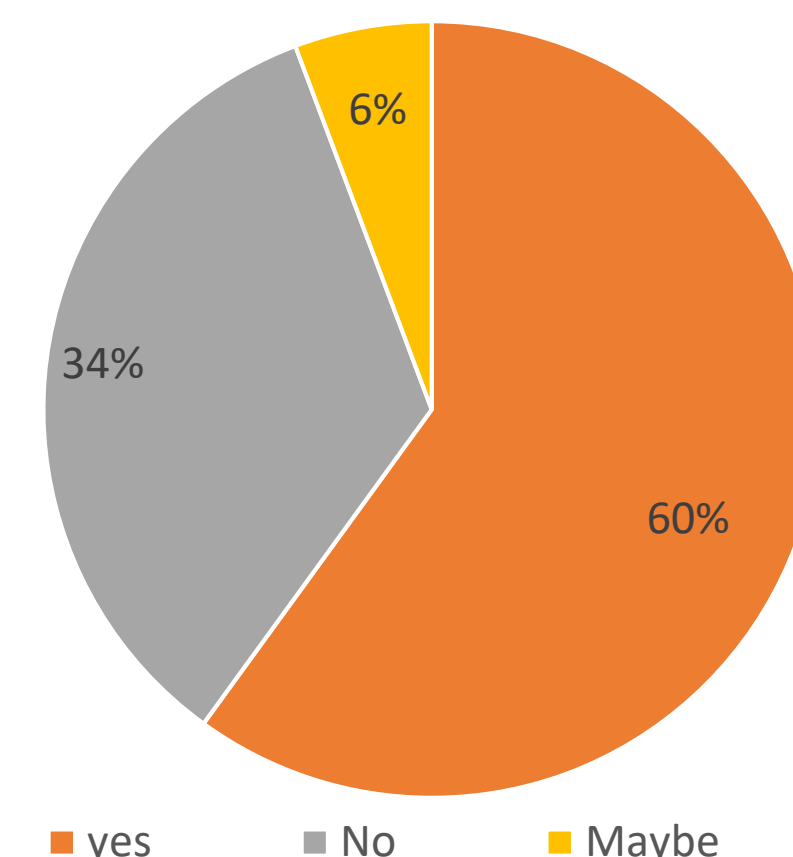
- Calculate descriptive statistics

Results: Survey-

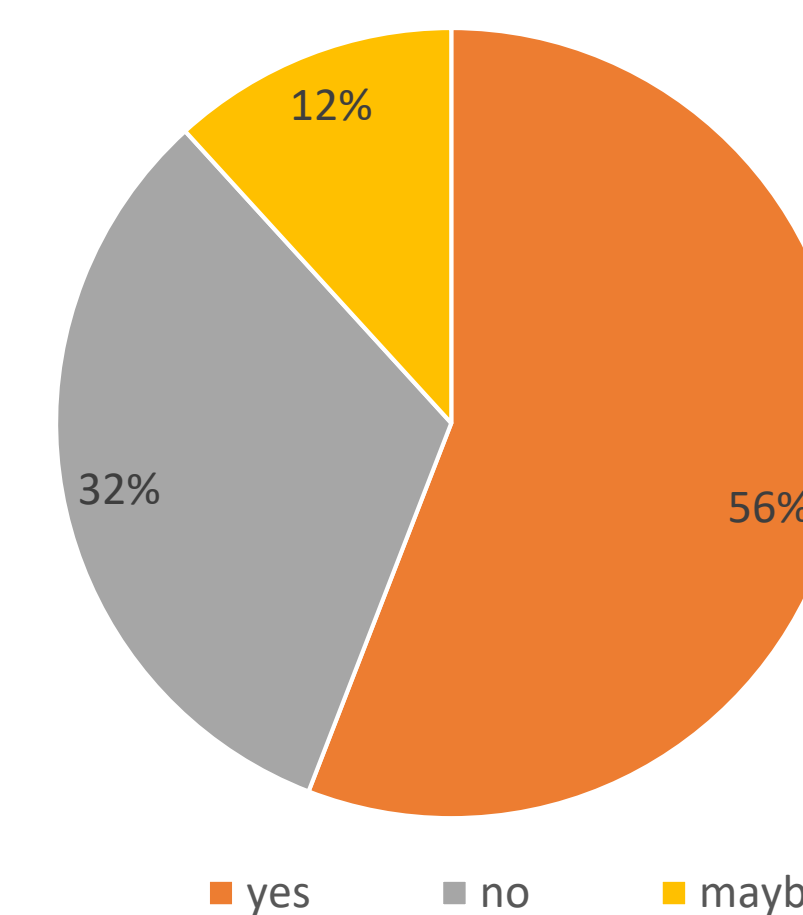
Comments/Questions

I am currently renting but will look into the heating and cooling systems that use geothermal energy.
 I would have to know the costs associated with it and understand it better to weigh my options
 I am interested in Geothermal Heat Pump as long as it cuts the cost and is safe for the environment.
 What is the cost of a geothermal unit?
 How many people have geothermal units?
 What's the annual cost of for geothermal unit?
 How does Solar energy and Geothermal energy work together?

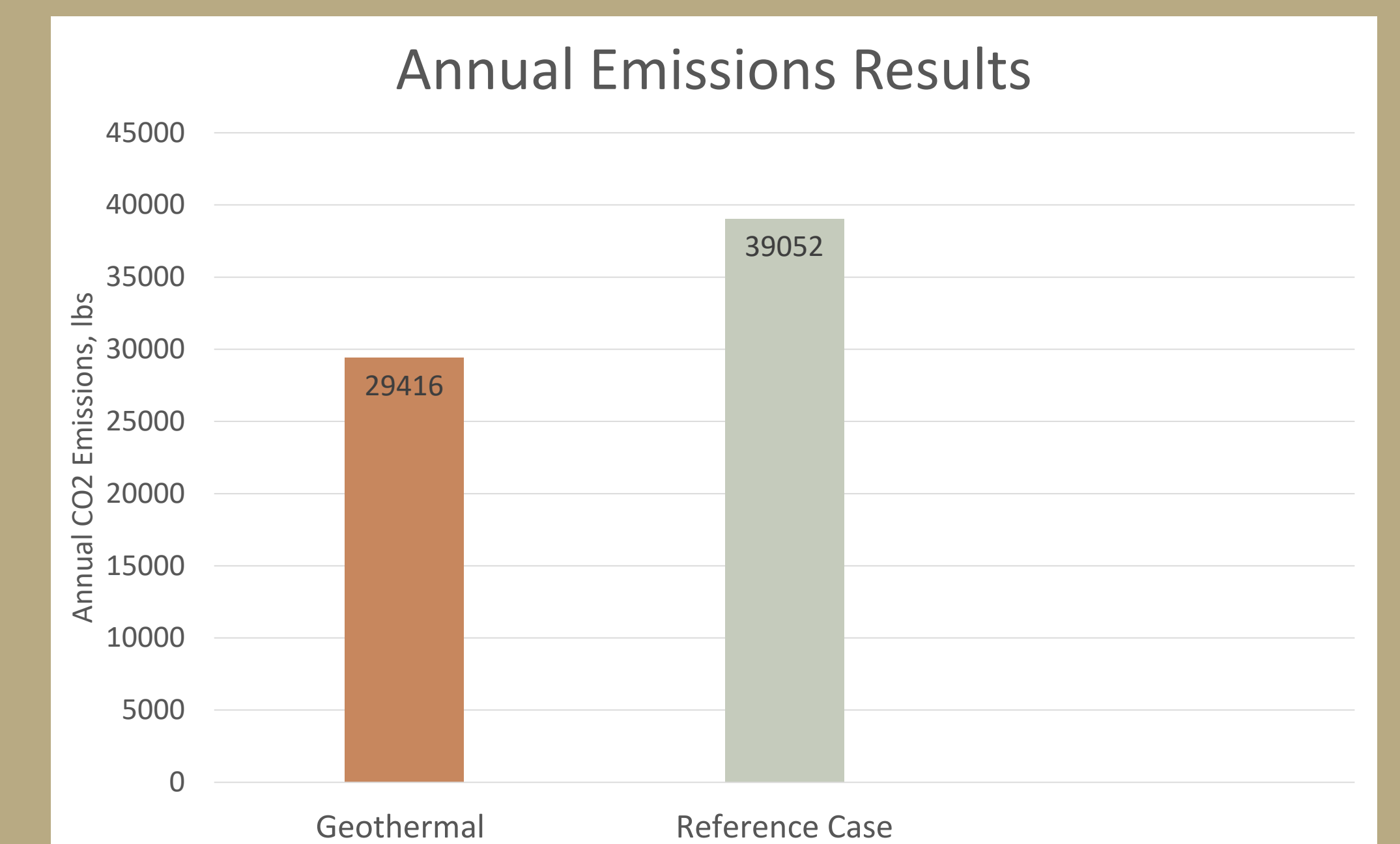
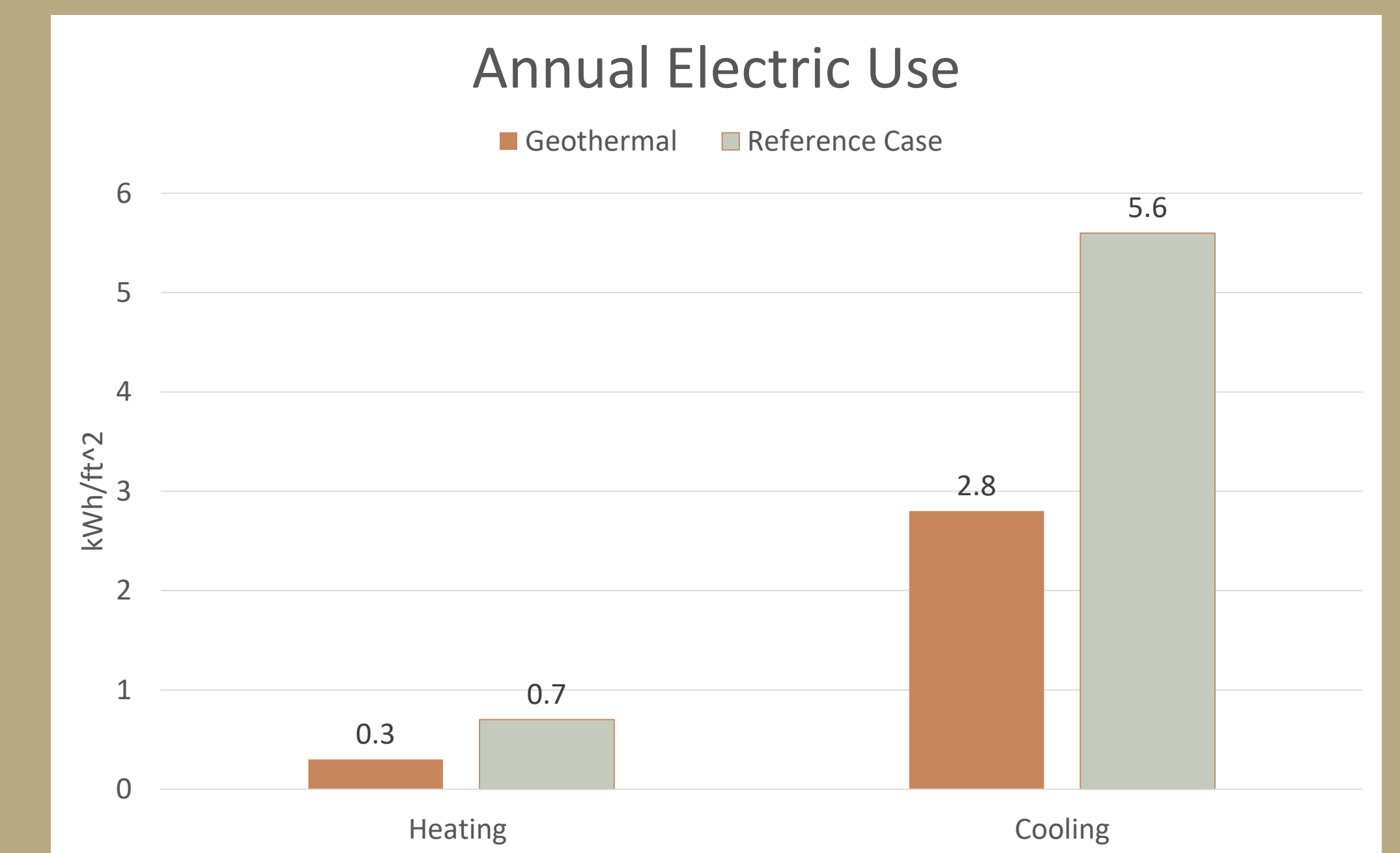
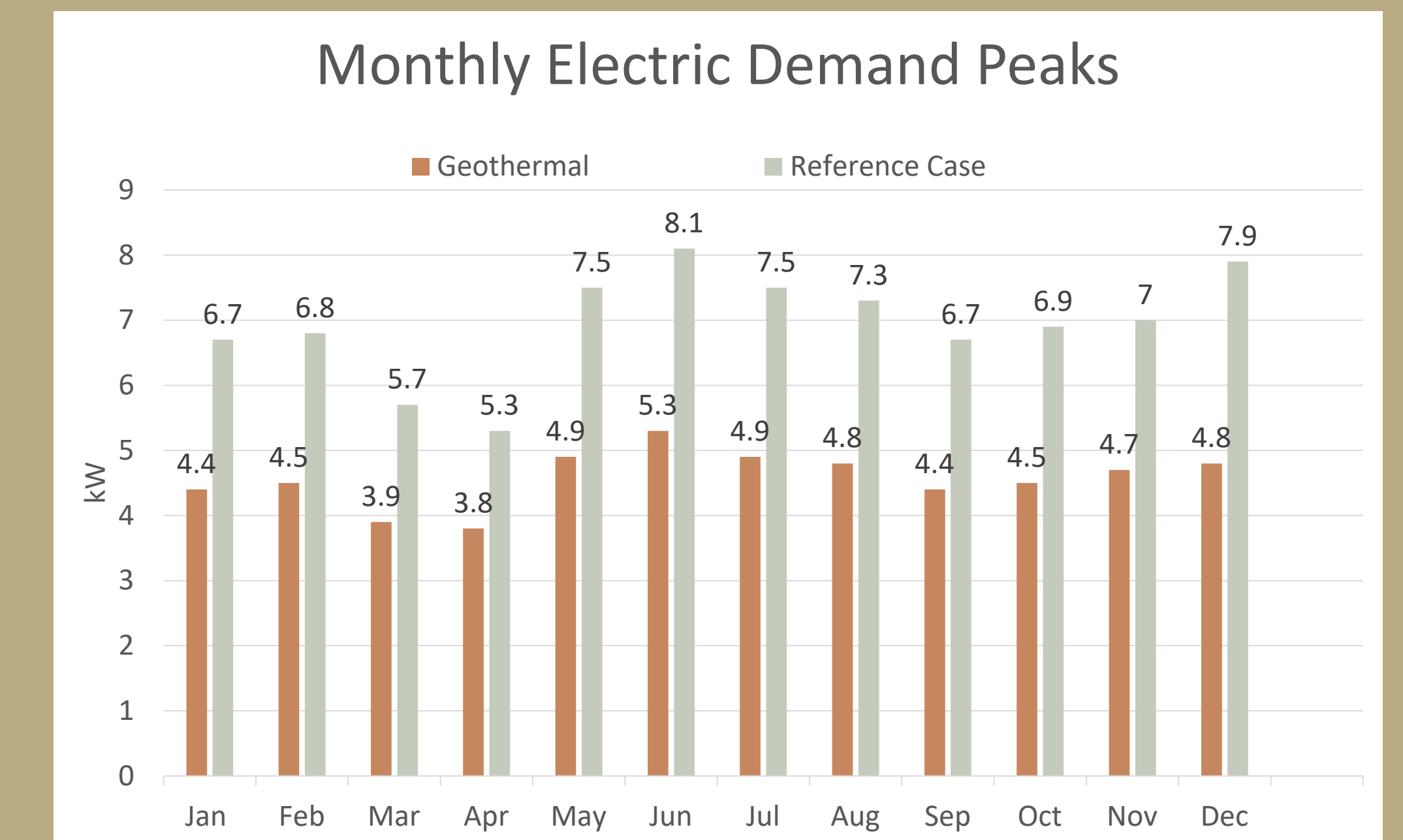
Are you paying too much for heating and Cooling?



Adopting Geothermal Heat pumps



Results –Energy Analysis



Recommendations-

- Compare not only the efficiency but the overall cost of the system
- Use only one manufacturer and compare their geothermal and air to air system
- Show the difference in price