Geothermal Energy. Sustainable Heating and Cooling Using the Ground

Description:

Geothermal Energy: Sustainable Heating and Cooling Using the Ground

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Comprehensively covers geothermal energy systems that utilize ground energy in conjunction with heat pumps to provide sustainable heating and cooling.

The book describes geothermal energy systems that utilize ground energy in conjunction with heat pumps and related technologies to provide heating and cooling. Also discussed are methods to model and assess such systems, as well as means to determine potential environmental impacts of geothermal energy systems and their thermal interaction. The book presents the most up-to-date information in the area. It provides material on a range of topics, from thermodynamic concepts to more advanced discussions of the renewability and sustainability of geothermal energy systems. Numerous applications of such systems are also provided.

Geothermal Energy: Sustainable Heating and Cooling Using the Ground takes a research orientated approach to provide coverage of the state of the art and emerging trends, and includes numerous illustrative examples and case studies. Theory and analysis are emphasized throughout, with detailed descriptions of models available for vertical and horizontal geothermal heat exchangers.

Key features:

- Explains geothermal energy systems that utilize ground energy in conjunction with heat pumps to provide heating and cooling, as well as related technologies such as thermal energy storage.
- Describes and discusses methods to model and analyze geothermal energy systems, and to determine their potential environmental impacts and thermal interactions.
- Covers various applications of geothermal energy systems.
- Takes a research orientated approach to provide coverage of the state of the art and emerging trends.
- Includes numerous illustrative examples and case studies.

The book is key for researchers and practitioners working in geothermal energy, as well as graduate and advanced undergraduate students in departments of mechanical, civil, chemical, energy, environmental, process and industrial engineering.

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