Innovative Thermal Exchange:

Tom Chadwick
GI Energy

Stan Reitsma
Geosource Energy, Inc.

Richard Gerbe
Highmark/Sharc

Klaar De Schepper
Dutch ATES
Innovative Thermal Exchange:  
*Building Foundations, Angled Drilling, Waste Water & Aquifer Energy Storage*

How does your technology extract and absorb heat and how is it different from a standard closed loop???

Tom Chadwick  
GI Energy
Integrated solutions optimize benefits

- Solar PV
- Boiler
- CHP
- GSHP Pond Loop
- Battery Storage
- Water Recycling
- Cooling Tower
- Solar Thermal
- Energy Foundations
- Fuel Cells
- Grid interconnection

District System
Ground Source Heat Pump (GSHP) System Options

**Major Benefits:**

- Lower operational costs
- 4 times more efficient than gas-fired boilers
- Reduced plant room requirements for facilities team
- Provides heating & cooling
What is an energy pile?

A surprisingly simple technology to create and install

Geothermal loops generally installed to full depth of pile, maximizing geothermal energy

Reinforcement cage at top of the pile

Detail of rebar reinforcement
Energy foundations – installation

Preparation off critical path

Installation

Flow & pressure testing to energy piles ahead of pile cap construction
Energy pile to energy pile cap
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Stan Reitsma
Geosource Energy, Inc.
Advances in Drilling
Stanley Reitsma, Geosource Energy Inc.

Mud drilling in 2005
First hole to about 300’

Drilling now
Approximately 65 holes to 640’ complete
Under-building Geothermal System
Angled Hole Geothermal System
Angled Hole Geothermal System
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Richard Gerbe 
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How much energy is available?

“350 billion Kw-Hrs worth of hot water are discarded annually through drains in North America”

– US Department of Energy
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Klaar De Schepper
Dutch ATES
DUTCH ATES

ATES systems can reduce GHG emissions by 45%-65%

4-8 Years

Typical Payback Period

Aquifer Thermal Energy Storage

PROVEN ENERGY TECHNOLOGY FROM THE NETHERLANDS

2 WELLS

SUMMER

WINTER