

# Geothermal Heat Pumps: Brown is the New Green

Jay Wilson, Esq.  
Geothermal Options LLC

# What is geothermal?

- Geothermal Power Generation: tapping underground sources of heat in exceptional locations (e.g., Iceland, Hawaii) to generate electrical power
- Geothermal Heat Pumps: heating and cooling buildings by moving heat from the ground into the building (heating), or the reverse (cooling), by circulating a fluid through underground tubing

# Geothermal Heat Pumps

- 40-75% more efficient than other methods of heating and cooling
- No combustion, no noise, long system life
- Energy consumption reduced to levels that make green power use more feasible
- System is similar to a standard heat pump or central A/C system, except uses the ground as a heat reservoir instead of the outdoor air

# Geothermal Heat Pump



# Geothermal History

- Geothermal heat pump technology first developed in late 1940s
- Slow development originally due to high cost (and low cost of fossil fuels)
- Development accelerated in 1970s energy crisis, then slowed again to a steady pace
- Recent surge in interest during last 5 years, continues to accelerate, technology is mature

# Geothermal Market Outlook

- Rising energy prices have spurred interest
- Federal tax incentives have gone from zero to 30% (residential) and 10% (commercial) within the last several months, with the biggest incentive increase in the Obama incentive bill
- The owner of one of the larger DC-area geothermal companies thinks the tax breaks will “blow the top off” the geothermal market

# Geothermal Industry

- Consists of
  - Manufacturers
  - Distributors
  - Dealers/Installers
  - Drillers

# Manufacturers

- Major players
  - EarthLinked Technologies (Florida)
  - WaterFurnace (Indiana)
  - ClimateMaster (Oklahoma)
  - Florida Heat Pump (guess where?)
- Manufacturers seek sales reps, sometimes as independent distributors, sometimes as commissioned sales people
- Territories can cover entire states, can earn \$100-200K/yr

# HVAC Installers

- HVAC companies range from small one- or two-man companies to 200 or more employees
- Jobs: Helpers, Technicians, Sales, Office
- Entry level helpers: \$10-15/hr
- Apprenticeship offered with many companies, leading to salaries of \$20/hr
- Lead technicians can make \$30-40/hr
- Health and retirement often included 9

# HVAC Installers

- Larger companies have full-time sales people, entering at \$30K base pay and graduating to commission-only at 10%, with possible total income of \$80-100K/yr
- Many HVAC companies have a stop on hiring but geothermal is still a growing portion of business. Companies specializing in geothermal are growing, hiring sporadically

# Drilling Companies

- Drilling companies often multi-generation family companies, often small
- Larger companies may have 100 employees
- Jobs: drillers, salespeople, office
- Salespeople: Also trained largely on the job, make \$50-70K per annum, plus benefits, often not commissioned

# Drilling Companies

- Drillers: New hires may be unskilled, trained on the job, paid \$12-14/hr, plus health and 401K.
- Experienced drillers may make \$18/hr
- Overtime common
- Outdoor work, sometimes in bad weather
- Can become a state-licensed driller after multi-year apprenticeship. After that, can start own company

# Geothermal Drilling



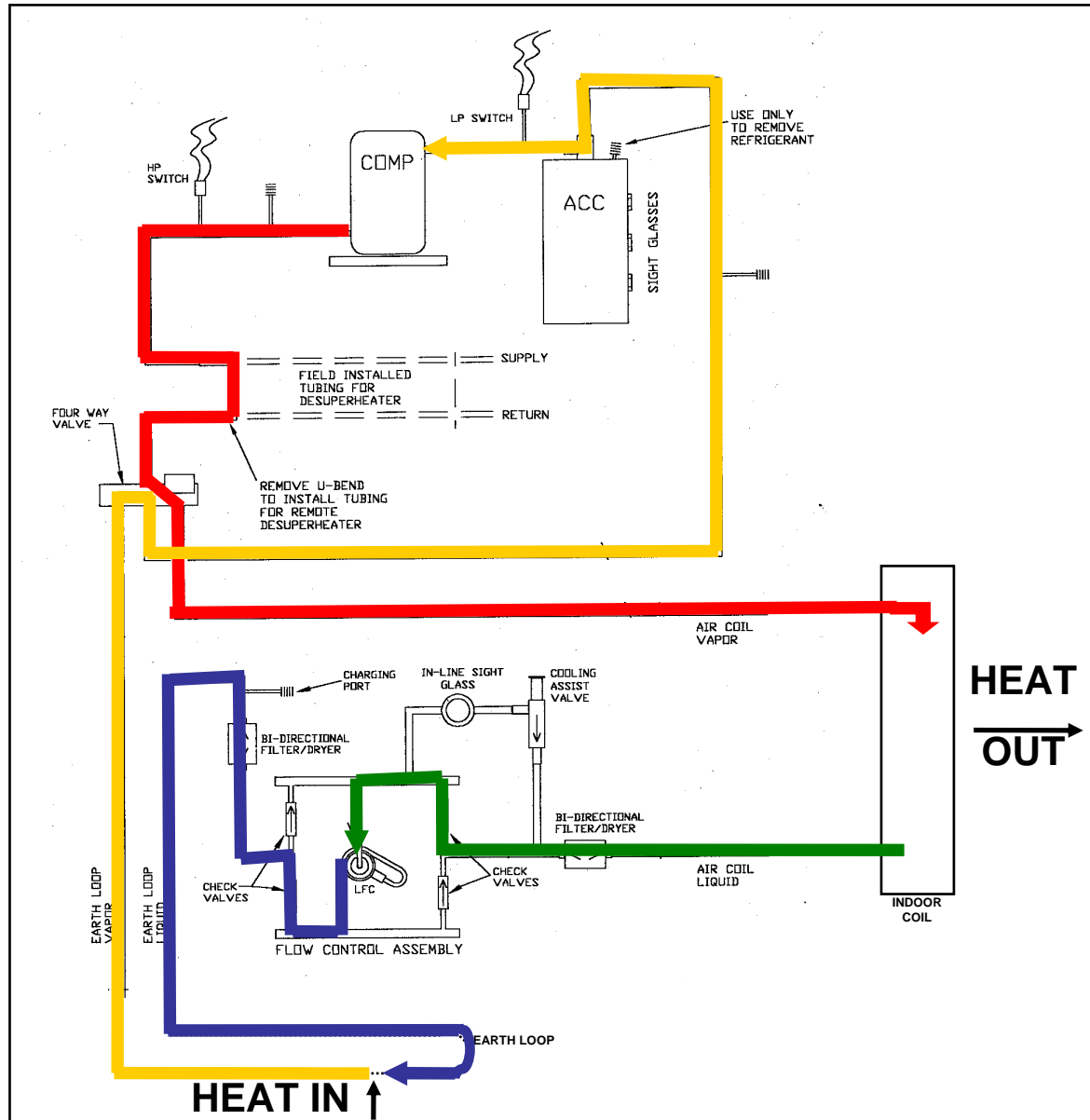
# Geothermal Spa Treatment



# Geothermal Options LLC

- In operation since Spring 2008
- Providing geothermal consulting services
- Exclusive distributor of EarthLinked DX Geothermal Heat Pumps since July 2008
- Based in Fairfax City, Virginia
- Small one-person company currently
- Possibility of internship summer of 2009
- Email [jay@geothermaloptions.com](mailto:jay@geothermaloptions.com)

# EARTHLINKED® DX SYSTEM - HEATING



# EARTHLINKED® DX SYSTEM - COOLING

