From Rebates to ROI
Geothermal Heat Pumps
Green ($) Energy Vision

Prepared for the Geothermal Heat Pump Workshop

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Utility Program Drivers

- Utility “re-regulation” for renewable energy, carbon reduction, peak load management, and efficiency
- Peak demand issues vs. kWh sales per meter
- Opportunities to provide new services/revenue
- Green jobs, low carbon economy

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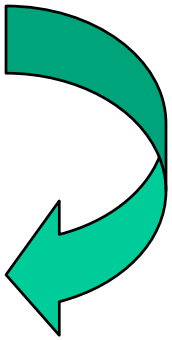
New Focus



Develop green technology based marketing efforts that support positive customer and regulator relationships while increase revenues or reducing costs.

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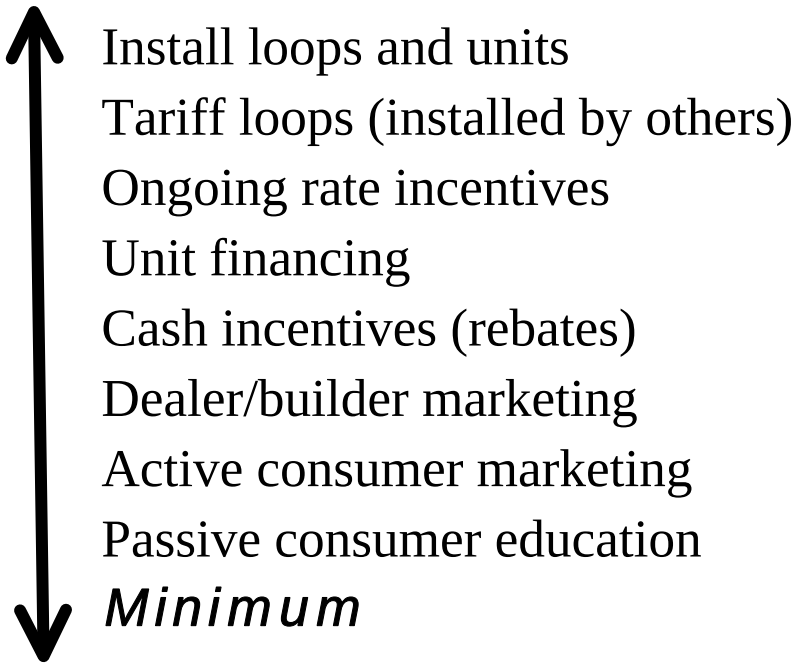
Utility Geo Program Questions

1. Needs and desires analysis
    1. Revenue?
    2. Diversification?
    3. Positioning?
2. Market analysis
    1. Market potential?
    2. Resource analysis?
3. Business plan
    1. Resource allocations?
    2. Strategic plans?
    3. Funding?
    4. Profits?

Utility Geo Participation

Range of Utility Activities/Responsibilities



Successful Energy Service Companies (Utilities?) Will:

- Install EE/RE technologies
- Maintain these technologies
- Create customer value with these technologies
- **Generate long term revenue streams** with these technologies

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Less Successful Utilities Will:

- Pay others to install these technologies (rebates)
- Pay the promotion costs for others who profit from these technologies
- Ignore these technologies because they “don’t fit” the utility business

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Utilities Can Make a "Profit" Putting the Environmentally Best Space Conditioning Equipment Into Customers' Homes Without Creating a One Time Transaction!

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The Loop Tariff

Proven energy service that provides geothermal heat pump loops to residential customers

At an affordable price

Better than propane

Better than natural gas!

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The Loop Tariff

- Eliminates the first cost barrier (new construction) and reduces it for retrofit applications.
- Adds winter kWh load while reducing summer peak demand.
- Provides two utility revenue streams and provides customers with a lower total energy cost than they had before.

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The Loop Tariff

- Pricing schedule
  - Average loop cost and corresponding monthly tariff payment is calculated in advance and adjusted if needed over time.
  - Includes only the earth loop. The equipment and installation is paid for (or financed) by the customer.

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The Loop Tariff

- Pricing schedule
  - The customer can “buy out” at any time for an established fee/price (weighted against early re-payments)
  - The tariff can continue with a new owner upon the sale of the home
  - The loop can be disconnected if the customer ceases to pay or requests disconnect.
    - But their total energy costs go up.

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The Loop Tariff

- Utility Dictated Loop, Equipment and Duct Installation Standards
  - All systems are **designed**
    - Building loads
    - Loop sizing
    - Duct design
  - All completed jobs are commissioned by the utility (or its agent)

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Utilizes Existing HVAC Companies

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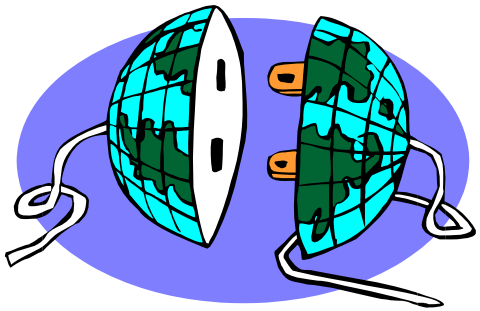
Economics

Customer perspective

- Annual savings of $500 to $1,000 +
  - Positive cash flow possible
  - No rate hikes on ¾ of energy needs
  - **Saving $15,000 to $30,000 over 30 years**



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Economics

- Customer “externalities” (feature/benefit)
  - Piece of mind
    - Stable heating & cooling costs
    - Utility grade customer service
  - “Green” contribution
    - Most efficient and carbon friendly system available
    - Up to a 30% federal tax credit

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Economics

- Commercial customers (if desired)
  - Saves capital
  - Reduces energy costs
  - Equipment looks like a utility payment
  - Technical concerns addressed by others
  - Investment tax credits or rebates

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Utility Economics

- Utility Test
  - New source of revenue
    - Higher load factor electric energy sales
      - ??? present value over 30 years (??% discount rate)
    - Incremental margins from Tariff arbitrage
      - $??? value over 30+ years (per unit)
    - Authorized rate of return, or bonus earnings?

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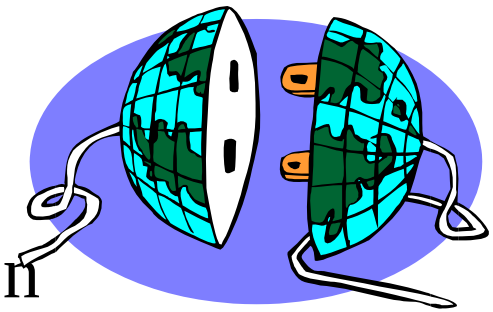
Earthly Economics

Utility perspective

- Installed loop costs $7,000 + (retail)
  = Premium over high end HVAC equipment
- Generates new winter electric sales
- Reduces peak summer demand
- In many cases, the utility could give loops away and double their return on existing plant
  - Needs to be modeled and tested
- kWh savings could count against RPS requirements value = ?
- Carbon Value?



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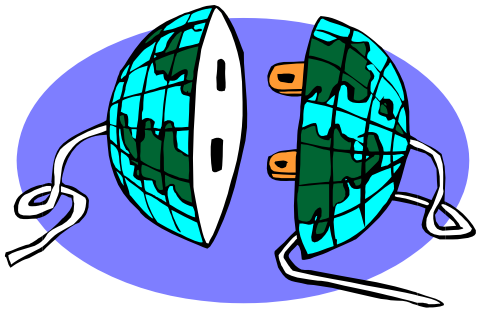
Earthly Economics

Utility perspective

- Can make a return on the loop (fixed plant) **and** make a return on incremental energy sales
- Future carbon credits can only "sweeten the pot" and the credits will go to the owner of the loop



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An Added Opportunity, Smart Meters

- 2 way load control
- Can keep Geo unit “off peak” or on low speed
- Could **double** the value of a GX system
- Need to conduct an analysis to establish value adder to GX installations

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Societal Test

- Provides solid margins for HVAC and loop installers and opens up the retrofit market in a rough new construction market
- Benefits other efficiency providers including retrofit contractors and home energy raters. (Green Jobs)
- Carbon Savings & RE goals

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Findings From National Focus Groups:

25-30% of participants said they would participate in a utility Geo financing program! (Higher acceptance than anti-lock brakes received when originally tested)

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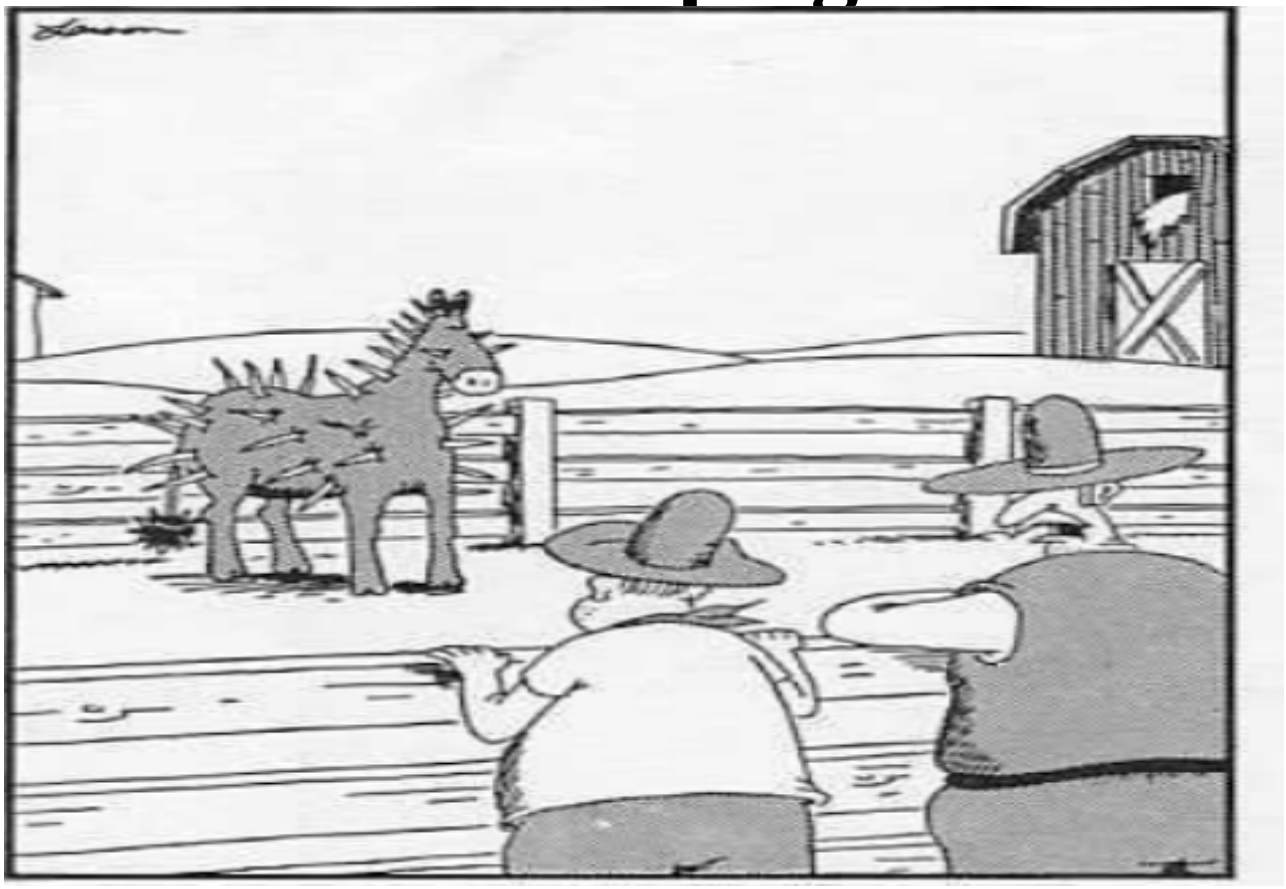
Look Forward to Reaping Your Rewards



"Well there he is bobby—old Geo. Sure he's tough, but if you can ride him, he's yours"

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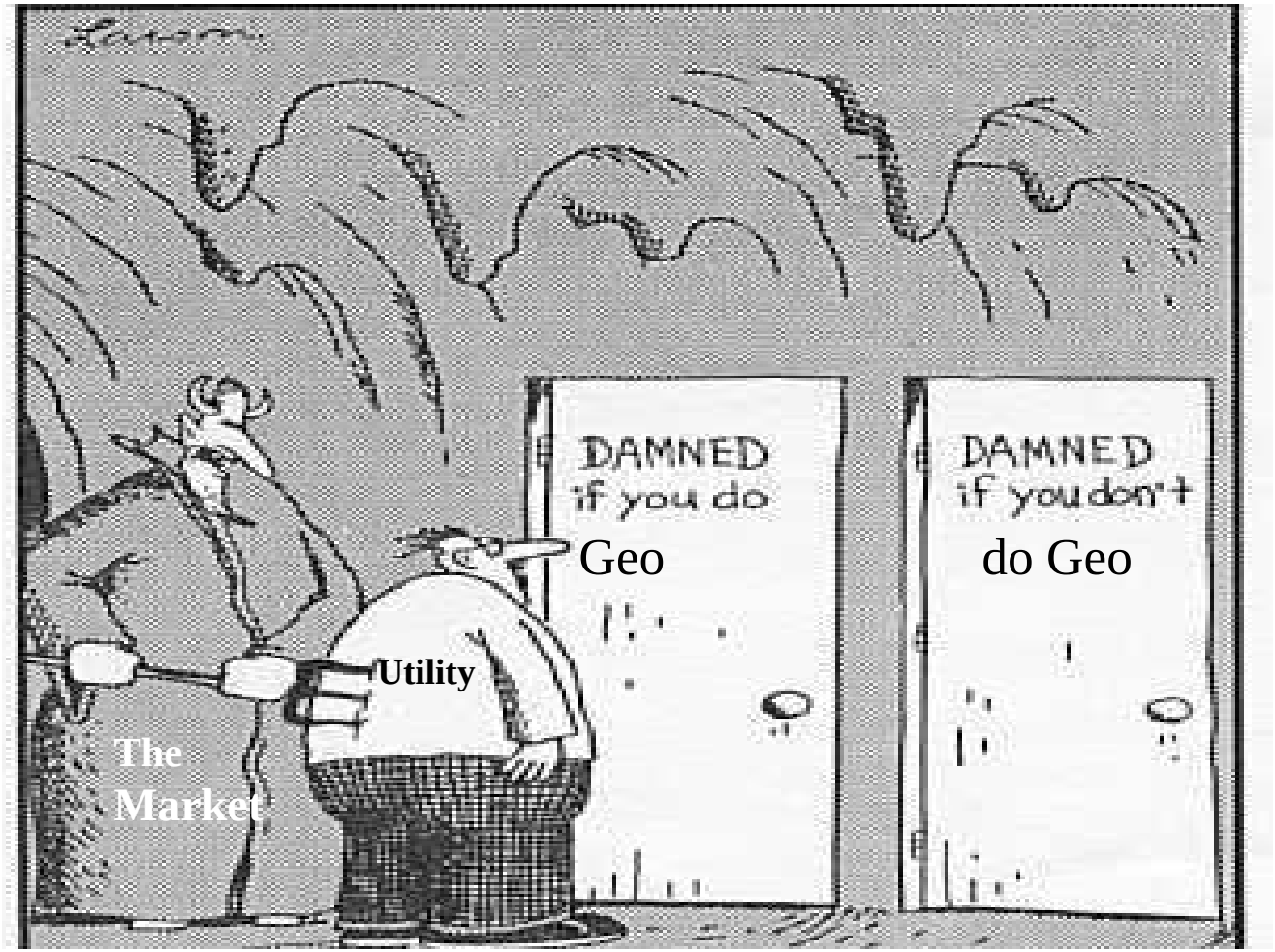

"C'mon, c'mon--it's either one or the other."

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