



Geothermal Alliance of Illinois



Stop The Stinkin' Thinkin'!!

Lead the Pack Thru Innovation

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A Little Background

- Adding thousands of new homes; debt going up; margins going down; rates going up.
- What the heck is going on?
- Performed internal study on two housing additions, gas heat, gas hot water, etc.
- Determined loss of approx. \$112.00 per year per home.
- Spending millions to buy the right to lose money on gas heated homes...forever!!



A Little Background

- Need to reduce peak demand and add off-peak kwh sales.
- Could control a/c units, but not a great idea.
- Determined answer to be geothermal.
- But how, they're expensive as hell?
- Only the wealthy can afford them.
- Builders hate putting them in.
- Then, thanks to the Governor, an idea popped in my head...



Clearing The Path

- From the Oklahoma Governor (2012 Energy Plan)

“Promote the large-scale build out of residential and commercial geothermal systems to preclude the need for new power generation where practical“



Our Energy Future

- 2.8 kW Reduction on Average Home
- 4,000-6,000 Additional Off-Peak kwh Sales When Changing Fuels or New Construction
- 2,000-3,000 Loss of kwh Sales if Changeout is Electric
- Still a Margin of \$100 - \$167/yr on Electric Changeout Due to Demand Reduction



One Little Ole Unit

- One GS Unit Replacing Electric
 - 2.8 kW Demand = \$267/yr
 - 2,000-3,000 reduced kwh/yr = \$120-\$200/yr
 - Net Annual Margin Increase \$67-\$147/yr
- One GS Unit Replacing Gas or New Construction
 - 2.8 kW Demand = \$267 /yr
 - 4,000-6,000 addtl kwh/yr. = \$160-\$240/yr.
 - Net Annual Margin Increase \$427-\$507/yr



One Hundred Little Ole Units

- One Hundred GS Units Replacing Electric
 - 280.0 kW Demand = \$28,224/yr
 - 200,000-300,000 reduced kwh/yr = \$12,000-\$20,000/yr
 - Net Annual Margin Increase \$8,200-\$16,200/yr
- One Hundred GS Units Replacing Gas or New Construction
 - 280.0 kW Demand = \$28,224/yr
 - 400,000-600,000 addtl. kwh/yr. = \$16,000-\$24,000/yr
 - Net Annual Margin Increase \$44,200-\$52,200/yr



One Thousand of Those Suckers

- One Thousand GS Units Replacing Electric
 - 2,800 kW Demand = \$282,200/yr
 - 2,000,000-3,000,000 reduced kwh/yr = \$120,000-\$200,000/yr
 - Net Annual Margin Increase \$82,200-\$162,200/yr
- One Thousand GS Units Replacing Gas or New Construction
 - 2,800 kW Demand = \$282,200 year
 - 4,000,000-6,000,000 addtl. kwh/yr. = \$160,000-\$240,000/yr.
 - Net Annual Margin Increase \$442,200-\$522,200/yr



We Know That...

- GS Systems save 40%-70% on heating, cooling and water heating costs.
- Average energy savings per home about \$1,100-\$2,000/yr
- Average cost of installation...about \$6,200/ton!
Outrageous
- Direct involvement on the part of the cooperative will drive pricing down sharply.



To Achieve Success We Need...

- Special Pricing from distributor
- Special installation pricing from contractor
- Cooperative to install loop, maintaining ownership while applying monthly users fee



How To Pay For The Loop?

- We'll need money, we finance short term 5% money, then we...
- Spread cost of debt recovery through special rider, and we...
- Build monthly user fee into the customer charge of the rate, plus we...
- Apply G&T rebate to cost of loop, then we...
- Enjoy reduced demand cost on wholesale power bill, we also...
- Discontinue Air-Source Heat Pump rebates and apply that money to loop costs. \$240,000/yr.



So, Here's The Skinny...

- Example:
 - \$7,500 loop plus interest for 5 years = \$8,492.06
 - Apply \$1,600 WFECC rebate = \$6,892.06
 - Apply to MSF = \$.00000394 per kwh/yr
 - Charge extra \$20/mo customer charge X 360 = \$7,200
 - 1000 units = \$6,892,060
 - Apply to MSF = \$.00393832 per kwh
 - 360 months of fees on 1000 units is....
 - Wait for it....



How Much Money???

- \$7,200,000! Over \$300,000 more than the original cost of the loops, but wait
- Reduced wholesale power cost from demand reduction = \$8,460,000 (30 yrs) and increased kwh sales = \$15,726,000 (30 yrs). That's \$24,486,000 margins in 30 yrs! On a thousand homes!
- Because of debt recovery acceleration, cooperative owns 100% book value (equity) of the asset after 5 years, not 30! What's that worth to ya?



Are You Done With Stinkin Thinkin???

- What do you need to do to get started?
- First, use the math to convince your petrified General Manager to say yes, let's do it.
- Second, adopt a loop agreement which includes right of way.
- Third adopt a loop tariff to file with your Commission as well as a rider to accelerate debt recovery.
- Fourth, round up as many installers as you can find as quickly as you can because this will be hot.



No More Stinkin Thinkin, Our Energy Future IS Ground Source Heat Pumps

That's It, Let's Talk

