



OGA ANNUAL CONFERENCE

2016

The Challenge

There are two key hurdles that have historically hindered the success of Residential Geothermal projects



Capital Cost



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Technology Risks

The Diverso Energy Solution addresses both of these

The Challenge

There are two key hurdles that have historically hindered the success of **Commercial Geothermal projects**



Capital Cost

&



Technology Risks

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The Challenge

Developer Challenges

Pressure to be “Green”

- Market pressures
- City or Municipal
- Building Code

Budget Pressures

The Challenge

Who and What Drives Decisions During Construction?

- Loan to Value Ratio -70 to 80%
- Value is determined by lender using conventional measures
 - Condo sale price
 - Rental income
 - Location
- Budgets are unlikely to be adjusted to accommodate geothermal

Lenders decide if there's room for geothermal not the developer

The Challenge

What do developers care most about? - Capital Cost

What do developers care less about? - Operating Cost

What do developers care least about? - Being Green

What do developers promote the most? -Sustainability

What do developers promote very little? - Operating Cost

What do developers promote not at all? - Capital Cost

The Challenge

Decisions during design period are driven by

- Budget
- Technologies or features that generate immediate monetary value

Capital Costs will always trump Operating Costs

The Solution

**Do we continue to wait for the lending world to
change?**

Or

Do we change how we approach the market?

Solution:

Convert the Capital Cost to an Operating Cost

Win-Win-Win Business Model



DEVELOPER / OWNER	TENANT / CONDO OWNER	PRIVATE UTILITY/INDUSTRY																
<ul style="list-style-type: none"> ○ Payments are off balance sheet and are accounted for as a pass-through operating expense ○ Saves significant upfront development capital ○ Increased building marketability <p style="text-align: center;"><i>Example</i></p>	<ul style="list-style-type: none"> ○ Payments are predictable and stable thereby reducing exposure to volatile energy costs ○ Lower monthly energy and maintenance costs ○ Increased marketability and value <p style="text-align: center;"><i>Example</i></p>	<ul style="list-style-type: none"> ○ Heat Pump Suppliers ○ Drilling Contractors ○ Engineers /Architects can comply with codes <p style="text-align: center;"><i>Example</i></p>																
<p style="text-align: center;">↓</p> <p>System Comparison:</p> <table border="0"> <tr> <td>Traditional System Cost</td> <td style="text-align: right;">\$1,750,000</td> </tr> <tr> <td>Geo-Exchange System Cost</td> <td style="text-align: right;">\$2,500,000</td> </tr> <tr> <td>(minus) Diverso funded loop</td> <td style="text-align: right;">\$1,200,000</td> </tr> <tr> <td>Net Geo-Exchange Cost</td> <td style="text-align: right;">\$1,300,000</td> </tr> <tr> <td>Upfront Cost Savings</td> <td style="text-align: right;">\$450,000</td> </tr> </table>	Traditional System Cost	\$1,750,000	Geo-Exchange System Cost	\$2,500,000	(minus) Diverso funded loop	\$1,200,000	Net Geo-Exchange Cost	\$1,300,000	Upfront Cost Savings	\$450,000	<p style="text-align: center;">↓</p> <p>30 year Average Annual Savings: (per unit)</p> <table border="0"> <tr> <td>Traditional HVAC Condo Fee</td> <td style="text-align: right;">\$1,200</td> </tr> <tr> <td>Diverso Energy Solution Fee</td> <td style="text-align: right;">\$750</td> </tr> <tr> <td>Net Annual Savings</td> <td style="text-align: right;">\$450</td> </tr> </table>	Traditional HVAC Condo Fee	\$1,200	Diverso Energy Solution Fee	\$750	Net Annual Savings	\$450	<p style="text-align: center;">↓</p>
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The Solution

Benefits to the Developer/Owner include:

- HVAC Budget Reduction (cooling towers, boilers etc.)
- Reduce space requirements of HVAC (Architectural Freedom)
- Marketing appeal of a Green Building
- Financial Benefits of a Geo-Exchange solution without the cost (i.e. accelerated depreciation and increased building valuation)
- LEED points

Benefits to the Long Term Occupant include:

- Hedging against future gas price increases (fixed thermal energy cost for life of PPA) & cost certainty.
- Expected financial savings over the lifetime of the contract.
- Improved real-estate market value & marketability.
- A quiet outdoor green space or terrace due to the elimination of a cooling tower or condensing units.

The Solution



Benefits to Industry Include:

Drilling

- Long term ownership and responsibility rewards top quality contractors – price is less of a deterrent.

Equipment Sales

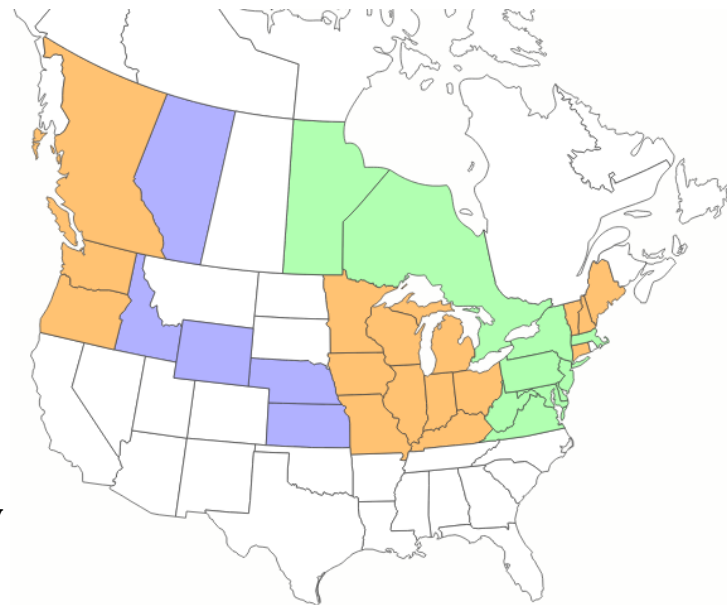
- Business case can be made for heat pumps or heat recovery chillers when boiler cooling tower is removed

Target Market

Primary



Secondary



Legend:

- Current Target Market
- Plans to Expand to these Markets (BD work underway for many)
- Potential Future Market Opportunity

Factors Impacting our Regional Focus:

- Existing Partner Relationships (i.e. Geo-Exchange Drillers)
- Market Dynamics (Is Sustainability Important?)
- Energy Costs
- Climate Factors
- Competition

Summary:

With the right financial model geothermal can bridge the gap between sustainable expectations and financial expectations