

Geothermal Energy- The Secret Investment The Ultra Rich are Flocking to!

The purpose of this report is not to show you exactly how geothermal energy is garnered from the earth's crust to produce energy, rather, it is to explain why it's a financially viable investment compared to other sources of alternative energy or commodities for that matter.

The important thing to keep in mind is, it's relatively unknown to most investors, But, in recent months it has been gaining steam, pardon the pun, with niche investment banks, energy companies and private investors alike who realize the political, environmental, and most importantly, the economic benefits of geothermal energy.

In a market that is saturated with dwindling supplies of valuable commodities, this is a fresh perspective to the alternative energy investor who can get involved while the science is being perfected and production and consumption levels increasing "under the radar" at very attractive rates.

Recently, geothermal stocks have seen a blossoming rise in investments and this interest in carrying them to double, triple and quadruple digit gains...as you'll see in a minute.

Even for the average investor, who is losing money in this volatile market, it is important to take advantage of emerging trends, and follow what we like to call the "smart money," as they tend to outperform the market in both bull and bear cycles.

Which brings up an interesting point. With all the big money, like Warren Buffet, Goldman Sachs and Merrill Lynch loading up on shares, these companies have been moving faster than any energy stock we have witnessed in the same period of time.

And here's the kicker; the stock valuations of most of these companies don't reflect their geothermal assets.

Imagine what these companies will be doing once they are in full production mode and are supplying the U.S with a good portion of our mandated eco-friendly electric power needs?

Moving from this increased demand from big and small investors alike, geothermal stocks have been bringing in record gains. In the last 10 months alone, some of these companies have seen significant spikes in price and volume levels.

Here are some stocks that have attracted impressive gains over the last 10 months:

CEG...traded 66% higher since October,
CPNLQ.PK...exploded 1,502% in 10 months,
NGLPF.OB...climbed 61% higher since December;
UGHT.OB...surged 152% since March.

And this leads us to our featured company: **Raser Technologies (RZTI.OB)**

More on this company in just a moment, but first:

The Roots of Geothermal Energy:

Geothermal energy is, at its core, a renewable and abundant natural resource that is an environmentally friendly and sustainable source of electricity. Although it is relatively new to the financial markets, its roots are as old as the earth.

Some historians say geothermal energy has been used since the beginning of time. As hot water springs arose from the earth, people would seek its therapeutic qualities.

The Romans used it to heat buildings and applied it for medicinal purposes.

Centuries later, Native Indians would also use it for medicine, and additionally for cooking meat, (the Maoris of New Zealand are also thought to have used this technique)

Modern Production:

It wasn't until early 1904, where in Larderello, Italy, it was used to produce electric power, which is considered its first commercial usage.

Since the 1960's, the French have increased production to provide around 200,000 homes with geothermal power.

Commercially in the United States it has been a source of power since it was first established in the Geysers of California where it has been producing electricity since the 1960's as well.

What is amazing about its production capabilities compared to other alternative energy sources, like wind and solar, is that it is base load, which essentially means it runs 24 hours a day, 365 days a year, without producing any harmful emissions to the environment.

In fact, there is not a single geothermal field that has been exhausted to date, which in terms of longevity is an important attribute to any energy source financially.

Because it is a virtually endless source of power, the viability of buying land and building plants can be a long-term investment for some companies, who in turn, can provide years of steady income and revenue growth.

A typical geothermal plant cost between \$1.7 and \$2.1 million depending on its size.

After about 30 years the cost of operating a plant compared to other sources is drastically reduced to around 75 cents a kilowatt-hour, on plants that are operating around 97% efficiently.

Compared to wind power: which first of all is not consistently running 24/7 like geothermal is, the operating cost after 30 years is around \$1.36 per kilowatt-hour, at a average efficiency of 28%.

The disadvantage for geothermal in this case, lies in initial costs, which for wind power are roughly \$1 million per MW.

However, in the short-term, the cost of annual average production is higher for geothermal, estimated to be 8,497 MW hours per MW of capacity, where as wind only produces 2,453 MW hours per MW of capacity, and you have to remember also that they operate more efficiently and consistently.

After 20 years of production, assuming the average cost of \$1.9 million (depending on size) of a geothermal plant, the average capital cost component of one-kilowatt hour of is \$1.12. On the other hand, the average capital cost component of one-kilowatt hour of wind power is \$2.04.

Compared to Oil:

The escalating situation with oil is that it is grossly overused and the supplies are being depleted. In recent decades, it has become such a valuable commodity that the environmental side effects were pushed aside while the profit streams were flowing.

But now it's time to pay the piper. The world is rushing to find alternative sources for our unquenchable thirst for energy and our ever-growing consumption rates.

Oil was, and is, in such high demand that the oil cartel, formally known as OPEC, has the ability to control and manipulate supplies and therefore prices, affecting the market in drastic fashion time and time again, like in the 1970s as well as today.

It is a crucial energy supply for so long that we were gulping up supplies faster than alternative sources can be studied, drilled and become usable, making oil the king of all commodities.

It fact, it was around 1970, when many analyst estimated that oil peaked, only 145 years after it was first used in Titusville, Pa.

That fact, along with the environmental damages it caused to the earth has lead to a recent race for alternative energies that is both doubling in terms of actual costs and environmental feasibility as well.

In 2006, during the State of the Union address, President Bush proclaimed, “New technologies will help us reach another great goal: to replace more than 75% of our oil imports from the Middle East by 2025.”

This is just one example of how, as a nation, we are pushing hard to relieve our reliance on imported oil and spending billions of dollar on research and development of less proven commodities.

But taking that into consideration, imagine being in big oil in 1981, or even in March of this year, when prices snowballed profits and investor got rich without barley trying...that is the phase we are entering today, with alternative energies, like geothermal, solar and wind power.

As decades wane resources and stockpiles slowly dwindle for general commodities, the prices may be competitive, to geothermal in terms of supply and demand, but the overall demand will decrease, as alternative energy sources increase production, in turn making prices more attractive for eco friendly sources.

The interesting thing is the stocks involved in this industry are already valuable because of the land they lease/own, and the commodity they sell (green electricity) due to the growing popularity of alternative energy.

Furthermore, government subsidies and tax credits help geothermal be competitive in the short-term and long-term.

Political Movement for Alternative Energy:

According to a U.S Department of Energy report, *On the Road to Energy Security*, “In March 2006 the Geothermal Energy Association conducted a survey that showed a substantial surge in geothermal power project in the United States. Some 45 projects are under development in Alaska, Arizona, California, Hawaii, Idaho, New Mexico, Nevada, Oregon and Utah. These project, when developed, will provide between 1,778 and 2,055 megawatts of new electric power.”

The astonishing thing since that report is that there has been such a “surge” in project development and distribution that in the Western United States there is already 2,000 megawatts of installed capacity!

The single biggest geothermal project to date happens to be on our nations most treasured real estate- Fort Knox.

Fort Knox was mandated to reduce energy use 20% by 2015, at the core of their initiative is geothermal energy.

Like other real estate locations across America, the land underneath the sprawling Fort Knox can be used to produce geothermal energy.

At Fort Knox, they're drilling 685 geothermal holes with 64 miles of pipe below to provide heating and cooling for nearly one-third of its 8.5 million square feet of nonresidential building space.

Further...

State legislated renewable energy portfolio standards (RPS) have set targets for utility companies nationwide to ensure that a minimum percentage of their supply is from green power.

And you will notice that the states with some of the highest mandates happen to be geothermal hotbeds in the Western United States:

California, by far the most environmentally active state, has stated that by 2010, 20% of the state's electricity must come from renewable source.

To date roughly half of the states entire electricity is provided by geothermal energy under RPS standards, and that number is growing, helping California meet their ambitious goals.

Nevada has an RPS that requires a minimum 15% by 2013.

New Mexico: 10% RPS by 2011.

Hawaii has also mandated 10% by 2010 with the goal 20% by 2020. A large part of their renewable energy could potentially come from either geothermal electricity or geothermal heat pumps because of their large volcanic areas prime for production facilities.

Arizona, Oregon and Idaho are also in various stages of discussion, adoption or implementation of a RPS.

Geothermal usage outside of the U.S is also abundant, although surveys conducted have shown the U.S to have the largest available geothermal energy capability in the world!

In British Columbia, Canada, they recently mandated that 50% of all new power sources must be, as the Canadians call it, "Earth-friendly."

In Iceland, geothermal energy supplies about 18% of the country's electricity and 90% of heating and hot water.

In all, it is estimated that some 60 million people in 24 countries are receiving power from geothermal sources.

U.S Marketplace and Environmental Benefits

In 1999, geothermal energy provided 0.4 % of US electricity generation, 14.3 million Megawatts hours (MWhr), enough electricity to service 1,400,000 average households.

Geothermal energy projects currently under way are valued around \$1.5 billion annually...and that number is growing rapidly, as companies, such as Razer Technologies, are racing to buy up land and begin new tests.

According to one of the most advanced and informative studies ever conducted on geothermal energy by MIT, with the support of the U.S Department of Energy, the potential in America for this to become a viable and predominate energy player is far greater than we could have ever predicted even a few years ago.

The MIT report titled, "*The Future of Geothermal Energy*" has some interesting conclusions about the present and future roll of geothermal.

Panel head, Jefferson W. Tester, the H. P. Meissner Professor of Chemical Engineering at MIT concludes that the environmental impacts of geothermal development, "markedly lower than conventional fossil-fuel and nuclear power plants."

He goes on to say, "this environmental advantage is due to low emissions and the small overall footprint of the entire geothermal system, which results because energy capture and extraction is contained entirely underground, and the surface equipment needed for conversion to electricity is relatively compact."

- *First, fossil fuels--coal, oil and natural gas--are increasingly expensive and consumed in ever-increasing amounts.*
- *Second, oil and gas imports from foreign sources raise concerns over long-term energy security.*
- *Third, burning fossil fuels dumps carbon dioxide and other pollutants into the atmosphere.*
- *Finally, heat mining has the potential to supply a significant amount of the country's electricity currently being generated by conventional fossil fuel, hydroelectric and nuclear plants.*

According to another panel member, M. Nafi Toksöz, professor of geophysics, "the electricity produced annually by geothermal energy systems now in use in the United States at sites in California, Hawaii, Utah and Nevada is comparable to that produced by solar and wind power combined. And the potential is far greater still, since hot rocks below the surface are available in most parts of the United States."

As you can see these astute professors who have had their hands on the most extensive research and raw data imaginable conclude that geothermal is only going to get larger.