



GreenTech OPPORTUNITIES

...Profiting From Innovations in Green Technology

Investing in a New Era

A fundamental remake of the world's largest industry represents the greatest investment opportunity of a lifetime

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The world is embarking on a period of change that will surpass even the remarkable changes that occurred over the past couple of decades. The coming transition will impact every aspect of our lives – and present investment opportunities greater than any that have ever come before.

Within a generation, the world will have made enormous strides toward ending our centuries-long reliance on carbon fuels as the main driving force in every aspect of human activity.

Carbon fuels – coal, oil and natural gas – have been the major source of energy throughout the world since the beginning of the industrial age. Burning carbon fuels provides 88% of all the energy in the world. There are several irrefutable reasons why the world's reliance on carbon fuels must and will be lessened in the coming years.

Energy is the biggest industry in the world. It will take many decades to replace such a large industry. While it will take a very long time to complete the transformation, the process of finding alternatives to carbon fuels is underway and it will accelerate quickly. Along the way, new companies will arise and fortunes will be made by shareholders.

After suffering such devastation in the investing world over the last year, many people may be reluctant to invest in anything at this time. Just remember, the best returns are earned by those investors who buy when the markets are down and sell when the markets are high.

Even if the investment markets stay depressed for some time yet, the green energy sector will continue to attract strong investor interest. As you will see shortly, there is a huge movement in this direction. Impressive returns are available to investors in green energy, regardless of what happens to the overall markets.

This newsletter – **GreenTech Opportunities** – is intended to provide information to investors and to the public about the developments that are happening in this field. We will present commentary on the industry as well as specific investment ideas.

This first issue presents an overview of the energy market. Subsequent issues will discuss various aspects of the energy industry, looking at both the present situation and where it is headed.

Most importantly, we will present specific investment opportunities for investors to profit as the world evolves to a new era.

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CHANGES ARE ALREADY UNDERWAY

Over the next couple of decades, the world will fundamentally change the way it produces and uses energy. There will be no moment when a bell rings out to signal an official start to the new energy era. The change will be steady, and go unnoticed by many until the new world order is well established.

Think back 20 years: In 1989, few people had even heard of the Internet. Through the 1990's, the new technology made its way into every facet of our lives. The Internet was well established before most people realized what it was or how big it had become.

Incredible wealth was generated by investors in Internet companies, including more billionaires than arose from any other industry. Unfortunately, the vast majority of investors came too late to the party, with many losing money as the bubble burst.

The largest company in the world, Microsoft, owes much of its phenomenal growth to the Internet. Thousands of new companies were created as the new way to handle information impacted on virtually every facet of society.

The change now upon us will be bigger and more wide-reaching than the life-altering experience of the past two decades. Like the Internet evolution, the new energy era is beginning quietly. By the time it reaches a fever pitch in the popular media, it will be time for smart investors to take profits.

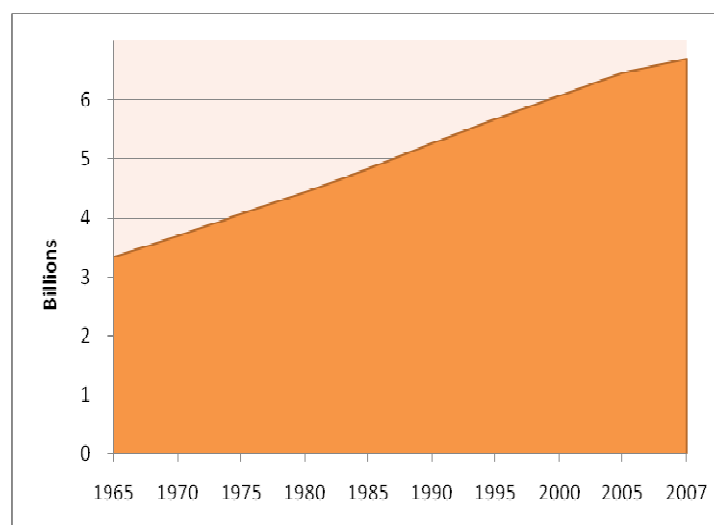
IT SEEMED LIKE THERE WAS A NEVER ENDING SUPPLY OF OIL

For decades, the developed world steadily increased its consumption of oil in the mistaken belief that supplies were limitless. The wealthy nations used as much as they wanted, while the less fortunate were largely priced out of the market. Oil is not the only form of energy, of course, but it is the most important source and the hardest to replace.

Only in this decade did the developed world face serious competition for energy supplies. The rapidly growing numbers of middle-class consumers in Asia and other areas began competing with the West for oil as well as the full range of other natural resources. With the developing world now joining the bidding, the oil price soared from \$12.18 (in Dec '98) at the start of the decade to hit \$147 a barrel last year. The other forms of energy followed the path of oil.

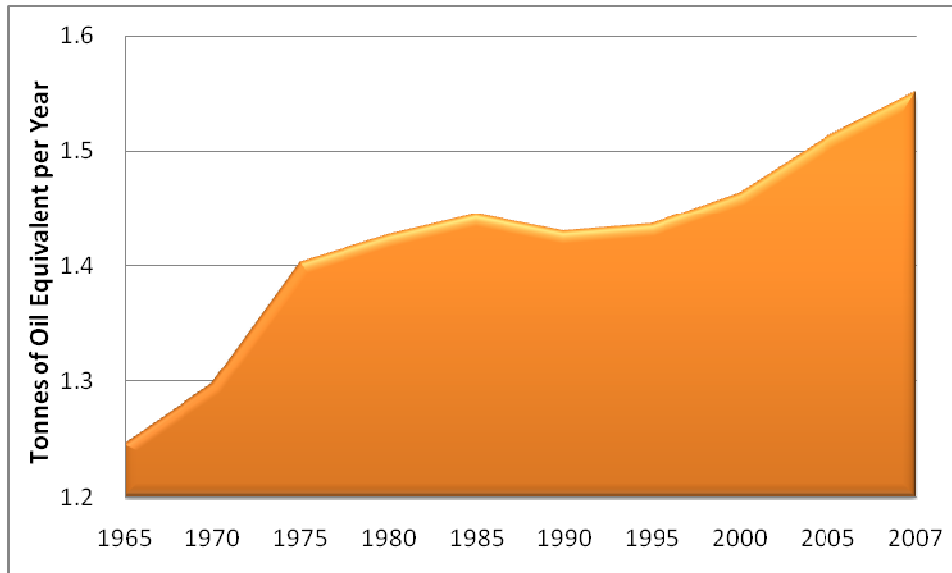
Speculators played a role in the sharp spike in resource prices, but that speculative flurry merely added momentum to the trends established by growing demand. The population of the world has doubled in just four decades, boosting demand for oil and other resources.

World population has doubled in four decades



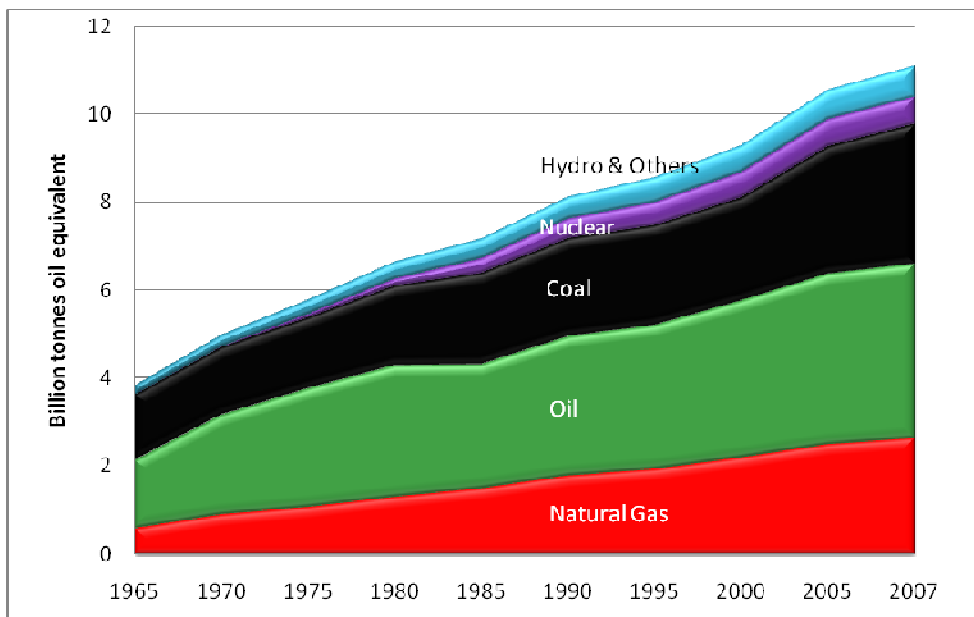
While the number of people was growing, the average level of energy consumption per person was also rising.

Energy Use per capita has grown by 30%



The combination of rapid population growth and rising per capita energy use fuelled a massive increase in total energy consumption.

World Energy Consumption (1965-2007)



In early 2008, speculators were acting with the knowledge that the energy industry would not be able to keep up to that level of growth in demand forever.

The financial crisis and the ensuing world-wide economic slowdown late in 2008 lessened demand and panicked speculators, so that the oil price fell back to \$30. Along with the drop in the price came renewed complacency, as if that sharp rise in the oil price was a mere anomaly in history that will not be repeated.

LIMITED OIL SUPPLIES

While it is certain that demand for energy will continue to escalate, it is equally certain that the oil industry will not be able to keep up with the growth in demand. It is becoming ever more clear that the end of abundant cheap oil is within sight.

In fact, it is only a matter of time, a few years or a decade at most, before oil production reaches a peak and begins a permanent decline. We hear much these days of “peak oil”, which refers to the point that will mark the highest level of annual oil production. We will present an overview of this issue in a subsequent article.

The debate goes on among experts about exactly which year peak oil will occur. Some see it within one or two or three years. Some believe that 2008 was the peak. None of those experts put that time more than a dozen years out.

No doubt, the oil industry will continue to make new discoveries each year. However, after decades of intensely scouring every corner of the planet, it is hard to imagine that there will suddenly be a big new find. In fact, in spite of intensive exploration efforts, new oil discoveries have fallen short of production for almost three decades!

Whether peak oil comes next year or next decade, there is no question that there is a limit to the amount of oil that can be produced, and that limit will soon be reached. It is inevitable and it will be upon us in a timeframe that presents some urgency.

Production of natural gas will continue to increase longer than oil, but it too is not far from reaching a peak. Coal supplies will hold out longer, but coal is the least attractive of the energy options: it is not practical as a motor fuel and is by far the most polluting.

DEMAND PRESSURE CONTINUES TO MOUNT

With peak oil within sight, the supply-side of the oil story is sobering. On the demand side, the outlook becomes shocking. The sharp run-up in energy prices last year was a wakeup call.

Within the last four decades, the population of the world has doubled to over 6.7 billion people. Even more substantial than the huge rise in the number of bodies is the fact that half of the world's population is industrializing at a fast pace. Fully 3 billion people are evolving from using bicycles to motorcycles to automobiles and are doing so at a pace that few people in the developed world come anywhere close to comprehending.

In only a decade, China has gone from having only a few million cars to operating nearly 100 million vehicles on a freeway network nearly as extensive as in the U.S. China now competes with the United States for the honor of the world's largest automobile market. In fact, in January, more cars were sold in China than the U.S., marking the first time in decades that the U.S. was not the largest car market.

It is certain that the number of vehicles on China's highways will continue to soar. How far can it go? Consider this: In the U.S.,
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there is, on average, one automobile for every 1.2 people in the country. (That means that there is nearly one vehicle for each man, woman and child in the United States.) In China, the ratio is one vehicle for each 13 people.

Over the next decade, the ten-times difference in vehicle ownership between China and the U.S. will narrow. Remember, China has nearly four times as many people as the U.S. Meanwhile, the same process is happening in India and in other emerging regions. Clearly, there will be many more cars on the road in the coming years, putting an ever greater strain on oil supplies.

Beyond purchasing cars, the growing middle class throughout Asia, the Middle East and a great part of Latin America are moving into houses and apartments with the full range of electrical appliances that all of us in the developed world take for granted.

Let's look at some figures to understand the impact that the industrialization of the developing world will have on energy demand. At present, China, on a per capita basis, uses 6% of the energy consumed in the United States. Put another way, the average American uses 15 times as much energy as an average Chinese person!

It is physically impossible for the 1.3 billion people in China to reach the level of energy consumption enjoyed by the average American in the foreseeable future, simply because the planet cannot support that level of energy usage with today's technology. But, the most populous nation in the world is moving rapidly to increase energy consumption, along with another 1.5 billion people in India and other parts of Asia as well as hundreds of millions of people in other regions.

Skyrocketing energy prices were brought back to earth by the world-wide economic slowdown. In due course, economic activity will resume, as it does after each and every slowdown. Even in the depth of the recession, China is growing at more than 6% a year. In a single decade, China has grown from obscurity to become the third largest economy in the world. The popular press makes much of the slowdown from the 10% annual growth that China enjoyed for the past decade. Even with the slowdown, at the present 6% growth rate, demand for energy in the world's most populous nation continues to increase at an alarming rate.

The developing world can never match the energy usage of the United States, yet the Chinese, and the Indians and all of the other people of the developing world will continue to increase their use of energy on a per capita basis, at the same time as the number of people in the world continues to rise.

And, while the developed world uses 15 times as much energy per capita as the developing world, the wealthy have so far shown little interest in cutting back on their energy gluttony.

FURTHER IMPETUS FOR CHANGE

Several factors have come together since the start of the current millennium that bring added impetus to the need for the world to get off carbon-based fuels. The premise that burning carbon fuels is increasing the amount of carbon dioxide in the atmosphere and contributing to global warming is now widely accepted by the scientific community and by the public.

In the face of growing scientific evidence in support of the human contribution toward global warming, opponents and sceptics are becoming fewer. Whatever you may think of the debate, it is clear that public sentiment is building in favour of reducing our reliance on burning carbon-based fuels. Growing public support for the issue will help to drive the world to adopt alternatives.

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Even if we ignore the potential for long term damage to the planet, we need only look at the immediate consequences to know that change is needed. For example, smog, smoke and fumes in virtually every large city in the developing world has reached a level that it creates serious health concerns, not to mention the simple unpleasantness of breathing air that burns the back of your throat and stings your eyes. Air pollution in most developing cities is reaching critical levels. Beijing had to practically shut down the city for a couple of weeks last summer to clear the air enough to host the Olympics.

It's not just in the big cities where the burning of fossil fuels is creating a problem. There are places in Asia where fresh air cannot be found even tens of kilometers from cities, as smoke from coal-fired power plants blankets the landscape.

Growing public concern over global warming and mounting problems over air pollution are adding impetus to the need to get off oil. There is no drop dead date, but the pressure is building. Public opinion and government policy are moving solidly against carbon fuels.

In 1992, most of the developed nations of the world reached a non-binding agreement called the Climate Change Convention to stabilize greenhouse gas emissions, including carbon dioxide. Later, the agreement was updated to the Kyoto Protocol, which set mandatory emission limits. The United States refused to comply with the Kyoto protocol, on the basis that it would exact too high a price in terms of stunting economic growth. (It is now realized that development of new energy industries will create an economic stimulus. We will discuss that in a moment.)

The United Kingdom is at the forefront of passing stricter legislation to reduce greenhouse emissions and reducing their reliance on fossil fuels. In November 2008, the UK Climate Act was passed, which intends that by 2020, greenhouse gas emissions will be at least 26% lower than 1990 levels and by 2050, they will be 80% lower. They have set a goal of obtaining 60% of their energy from renewable sources by 2050. The UK is looking at a number of ways to meet their ambitious targets. One proposal is a tidal project at the River Severn estuary that could generate 5% of the UK's electricity demand.

The European Union is taking its commitment towards reducing carbon emissions very seriously. In December of last year, the so-called 20-20-20 climate change targets became legally binding on each member state. These 2020 targets will require a 20% cut in greenhouse gases (from 1990 levels), a 20% reduction in energy consumption through increased energy efficiency and a goal of producing 20% of energy needs from renewable sources.

Under the previous administration, the United States had fallen far behind other industrialized nations in terms of green energy. The new President has vowed to catch up quickly.

Prior to being elected, President Obama said, "there is no better potential driver that pervades all aspects of our economy than a new energy economy... That's going to be my No. 1 priority when I get into office".

Obama is moving quickly to implement that campaign promise. Specific targets are being established that will signal to the world that the U.S. is serious about reducing carbon emissions. His plans call for investing \$150 billion over the next decade to stimulate clean energy investments in the private sector, which is projected to create five million new jobs.

Obama's targets include generating at least 10% of American electric power from renewable sources by 2012, and 25% by 2025. The American plan is in line with the EU's goal of 20% by 2020. The new President is also looking to the transportation

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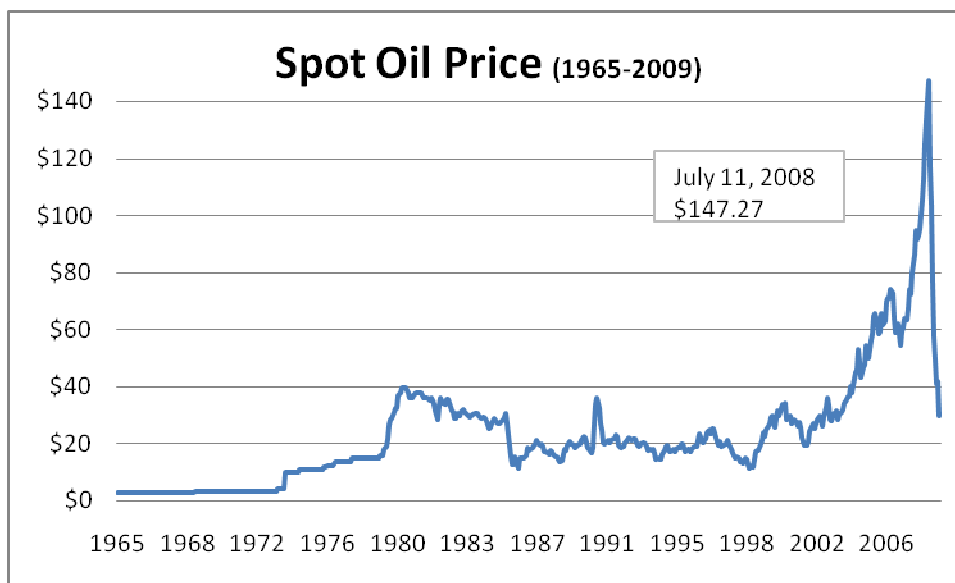
industry to find ways to save more oil than is currently imported from the Middle East and Venezuela within 10 years.

Those plans from the new U.S. administration are impressive in their own right, they will have the added impact of prodding other nations to at least keep up. The previous administration showed no leadership in this regard. With the U.S., as the world's biggest polluter, doing little to clean up its act, several other nations also dragged their feet on reducing carbon emissions. These moves by the U.S. should help get the whole world moving in the direction of reducing air pollution.

The other important thing that comes out of the new American policy is the recognition that rebuilding the energy industry will be a huge economic stimulus. That is a huge turnaround from previous administrations that seemed more intent on protecting the status quo of the oil industry.

PAST EFFORTS TO GET OFF OIL

Oil Price is volatile



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Efforts to lessen the dependence on oil began in earnest after the steep price rise in 1973. In October of that year the Arab members of the Organization of Petroleum Exporting Countries (OPEC) proclaimed an oil embargo in response to the U.S. decision to support Israel during that country's war with Egypt and Syria. The U.S. and other countries supporting Israel were effectively cut off from Arab oil. OPEC used the embargo to its advantage, gaining a hold over the oil market that it has not let go of.

As a result of the OPEC action, the price of crude quadrupled from \$3 per barrel in 1972 to over \$12 by the end of 1974. The sky rocketing energy prices contributed to an economic recession. In spite of that slowdown, the oil price held at the elevated level, even as demand lessened.

Among other measures, the U.S. imposed fuel rationing and reduced the speed limit on all highways to improve fuel efficiency to help cope with the oil shortage.

The realization that cheap oil could not be counted on forever led to the development of several alternative energy industries,
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including: natural gas, nuclear, geothermal, solar and wind. A number of other initiatives, such as attempts to harness ocean tides produced high hopes, but little in the way of commercial development.

The high oil price also spurred exploration and development efforts. Geologists spread out across the surface of the planet, including deep under the oceans. Progressively more sophisticated exploration tools enabled the geologists to search for oil even at extraordinary depths under land and water.

In 1979, disruptions in supplies resulting from the Iranian Revolution led to another dramatic increase in the oil price, this time from about \$16 to just under \$40. Once more, there was much agitation and talk aimed at lessening dependence on oil in general and Middle East oil in particular. However, before much was accomplished at getting off oil, the intense exploration efforts of the 1970's began to bear fruit. As new discoveries were brought on stream, the increased production saw the oil price plummet, dropping to as low as \$12.

The world has been talking about getting off oil for nearly four decades. Whenever there is a shortage of oil, there is a flurry of activity to reduce oil usage, but those efforts fade away when new supplies come onto the market. Except for a few brief periods, there was so much oil that it seemed almost unthinkable that the end of cheap oil would ever come. As long as cheap oil seems limitless, efforts to develop alternatives are pushed to the background.

LITTLE ACCOMPLISHED AFTER FOUR DECADES

After four decades of efforts to lessen dependency, oil consumption has increased by 85%, from 46 million barrels per day in 1970 to the present 85 million barrels per day.

Fair enough, the population of the world also increased by 80% in that timeframe. However, total energy usage has risen by much faster than the population growth, as energy usage per capita continues to rise.

The proportion of oil in the total energy mix has fallen slightly, yet nearly all of the gains in total energy production are from other carbon fuels: natural gas and coal.

The world burns three times as much natural gas now as four decades ago. Today, coal is being burned at twice the 1970 level, reaching 6.5 billion tons a year.

Just to give a picture of how much coal is burned each year, consider this: a one-mile-long unit-train of 100 coal cars carries about 10,000 tons. It would take 650,000 unit-train loads to transport the coal burned each year. That many trains would stretch around the world 26 times!

Efforts to implement non-carbon fuels have so far been disappointing. In the early 1970's, non-fossil fuels accounted for 6.5% of energy needs. After four decades of research and development into alternative energy, the cumulative contribution from all forms of non-carbon energy represents a mere 12% of the total energy equation. That figure includes hydro, nuclear, wind, solar and every other form of non-carbon energy.

Alternatives have so far done little to replace burning carbon fuels, which still provide almost 90% of all the energy on the planet.

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NO EASY ALTERNATIVE

Within the next decade or so, production of oil and then natural gas will begin a decline that can never be reversed. At the same time, energy demands in the world are escalating at a staggering pace. Coal cannot be relied upon to take the place of dwindling oil and natural gas. Even putting aside the issue of global warming, the environmental cost of burning more coal is simply unacceptable.

It has become imperative that the world identify and implement alternatives to carbon fuels.

Some people now recognize the urgency to develop alternative sources of energy. Even among that enlightened minority, very few people truly appreciate the big picture... and how big is the challenge.

For example, some people take a simplistic view that electric cars could simply replace gas guzzling vehicles. One must remember that the electricity needed to charge the batteries in electric cars must come from somewhere. At present, the biggest source for electric power generation is by burning coal, with natural gas coming in second. Therefore, with existing technologies, electric cars simply change the focus from burning oil to burning other forms of carbon fuels.

Some people believe that building more nuclear plants will be the solution. Yet, it takes more than a decade to build a nuclear reactor, even after permits are granted. And, the nuclear industry still hasn't found an environmentally acceptable way to dispose of the radioactive waste from nuclear fuel. The Germans are so opposed to nuclear energy that they are on a mission to shut down their nuclear facilities.

Hydroelectric power is seen by many as an attractive alternative. British Columbia, one of the wettest and most mountainous places on the planet, gets most, but not all of its electricity from hydroelectric facilities. Sure, there are still some undammed rivers, but public sentiment has swung solidly against any more dams in the province. If B.C. can't produce enough electricity from its many rivers to be self-sufficient in electricity, what hope is there for most other places in the world. And, that is before we consider powering cars with electricity.

Wind power is another very attractive and environmentally friendly approach to producing electricity. Yet, wind only makes sense in areas with relatively strong and stable wind pat-

terns. So far, wind farms have not attracted a great deal of opposition, but as they proliferate, it is inevitable that the not-in-my-backyard syndrome will further limit the areas in which wind power can be utilized.

Geothermal is another excellent option, but again, it has extremely limited applicability and cannot in any way be expected to replace carbon fuels to any great extent. Solar power, or "photo-voltaics" is gaining prominence, but with present technology this option still lags traditional energy in terms of total cost. Even with technological advances, it can not be counted on as the energy salvation.

Nuclear fusion (the power of the sun) is seen by some as the perfect solution. Yet, even the most optimistic estimates see 15 years or more of development work to get to the first demonstration facility. Then, realistically, further decades of development work and construction will be needed before even the first units are in commercial production.

It is vital to understand that each of the present alternatives has problems and limitations. No combination of presently known sources of energy is capable of coming anywhere close to replacing oil and the other carbon fuels and satisfying the growing

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energy demands without major advances in technology.

Even with huge technology breakthroughs, and with the development of additional new energy options, it will be a stretch to keep up with the growing demand for energy, let alone begin the momentous task of ultimately replacing oil.

While the scale of the challenge is staggering, the development and implementation of alternative energy forms presents one of the greatest investment opportunities of all time.

Given the limitations involved with alternatives energy forms, and the long lead time to develop new technologies, it is imperative that we look beyond simply generating more and more energy.

CHEAP AND WASTED

Equally important to finding new and better ways to produce energy it is vital that we develop and implement ways to use energy more effectively. If there is to be any hope that our children will enjoy the quality of life that we have now, we must intensify our efforts to find ways to use less energy.

Most of our energy consuming products are pathetically inefficient in terms of energy usage. The majority of the products that we use were designed in an era when energy was so cheap that nobody cared how much was wasted. As energy prices in-

creased, products were tweaked to make them more efficient, yet the fundamental design of nearly every product is the same now as it was decades or even a century ago.

Consider the ubiquitous light bulb. After more than 130 years of commercial use, most of the light bulbs today are fundamentally identical to the bulbs developed in Edison's lab: A filament in a glass globe is heated by electricity until it gets white hot. While perhaps slightly more efficient than Edison's prototype, only about 3% of the electricity that goes into a light bulb produces light: The other 97% of the electric current is wasted!

Compact fluorescent lights are several times more efficient than incandescent bulbs: They only waste 85% of the electricity. Light emitting diodes (LEDs) are more efficient, but at \$50 for a single screw-in bulb, LEDs are unlikely to take a big market share until further technological advances bring down the price.

In the not-too-distant future, someone will develop a way to make an inexpensive screw-in LED bulb, or they will develop a completely new way to make light more efficiently. Imagine owning a piece of whatever company makes that innovation!

Look at another example: The electric motors in use today, like the incandescent light bulb, are fundamentally the same as they were twelve decades ago. They have been tweaked, of course, but still consist of a coil of wire on a rod that spins around in an electric current. Only a small percentage of the electric energy is converted to mechanical energy in a motor.

The internal combustion engine, likewise, has changed little in more than a century. It still involves exploding a gas/air mixture to drive a piston up and down which turns a crankshaft around. The car is perhaps the ultimate in energy wastage: Only 0.3% of the energy content in the gasoline actually moves the driver down the road. Motor vehicles are the single biggest users of energy – and thus the biggest wasters.

“If there is to be any hope that our children will enjoy the quality of life that we have now, we must intensify our efforts to find ways to use less energy.”

We will present more details about these topics in coming issues. For now, we want to make one simple point: As energy prices escalate, every energy-using device on the planet will be re-designed to make them more energy efficient.

To see how change might look, think of a mobile phone. Early models were huge, and when they first came out, they needed so much power they were only practical when plugged into a car. Now, tiny batteries can power hours of conversation, thanks to quantum leaps in mobile phone technology.

The same intense effort that was devoted to improving mobile phones will be applied over the next decade to every consumer and industrial product on the planet.

Much of the change will come from further tweaking of pathetically bad designs. The exciting aspect of this story is that people will come up with entirely new concepts that will result in fundamental changes – and generate fortunes for the inventors and their financial backers. This is the part of the new era that we will be watching most closely!

PROBLEM OR OPPORTUNITY

Most people still see the evolution to a more energy friendly future as a cost – a burden that will drag down the economy.

The reality is that rebuilding the economy over the next couple of decades represents the greatest business opportunity ever!

The energy producing industry will be rebuilt from the ground up. At the same time, there will be a huge array of consumer and industrial products that will be redesigned.

The process will be evolutionary and is already underway. For example, look at incandescent light bulbs. At present, the alternatives – compact fluorescent lights – are expensive. Consumers need a nudge to justify the higher purchase price relative to the energy saving that will be realized over several years. That nudge comes from a combination of financial incentives and guilt. Higher energy prices will make the decisions easier.

As consumer demand for energy efficient products grows, manufacturing costs will drop, making the new products ever more attractive. Consumer spending will increase as people gradually adopt the better, but more expensive products. At the same time, technology will continue to move forward, further improving the products and reducing the price.

Clearly, consumers will not simply junk all of their present appliances to save energy. But, the cost saving will add to other reasons to buy. For example, as a clothes dryer nears the end of its useful life, a consumer might advance her decision to replace it based on the added incentive of saving money on energy with the new appliance.

Businesses will be even more proactive than consumers, because their accounting departments can quantify the savings that can be realized by investing in new technologies. Many companies have already adopted this approach and report impressive returns on invested capital.

The same process is happening on the generation side of the energy equation. At present, investment in “green energy” typically involves an incentive in some form to offset the higher costs. Over time, technology will advance and economies of scale will improve, bringing the cost of alternative energy in line with traditional energy costs.

As carbon fuel prices rise, there is scope for larger cost savings from new energy sources. With technology advances, some forms of renewable energy could easily become less costly than fossil fuels. Importantly, once the capital cost is in place, the

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fuel cost for most of the alternative energy sources is low or non-existent: Wind and solar power are effectively free once the equipment is in place. Great strides are being made at improving designs to bring down those capital costs.

As with consumers of energy, the producers will not suddenly rush out and replace their coal-fired or gas-fired plants. Growing pressures to go green and the outlook for rising fuel prices will see an evolution toward alternative energy production. Investing in new technology will be an economic stimulus.

If consumers and industry were simply forced to switch to green technology with no economic return, it would indeed cause a drag on the economy. However, both consumers and industry will see a return on investment as they save energy or produce energy more effectively. Investing to get a favorable return will generate a positive impact on the economy.

CASE STUDY: A COMPANY BORN FROM THE ENERGY SHIFT

Far from being a burden to the economy, adopting new energy technology can provide an economic stimulus. Consider the example of Germany: That country adopted a policy in 2000 to supply one quarter of its energy needs from renewable sources by 2020. Already, 15% of the electricity comes from renewables. As a result of that initiative, tens of thousands of jobs have been created and Germany is now the world leader in solar energy.

Q-Cells, which in 2001 was a tiny German company with 19 employees, decided to pursue the opportunity. In only a few years, it grew to a market value of \$8 billion in mid-2008 before the market crash. It is now the 2nd largest solar cell manufacturer in the world with sales well in excess of a billion dollars a year.

Other German companies have also built valuable expertise in wind and other forms of renewable energy. That expertise is being applied at home and is also being exported around the world.

REBUILDING THE BIGGEST INDUSTRY IN THE WORLD

It is worth noting that oil and gas is the biggest industry in the world. When you add in the coal industry and the electric power utilities around the world, you begin to get a sense of the colossal size of the energy industry. When you think of upgrading that colossal amount of capital, even over a generation, one can get a glimpse into the magnitude of the opportunity for new investment.

There are many alternatives available at present and each will contribute to the world of new energy. More importantly, each of the alternatives will be tweaked, upgraded, enhanced and renewed with fresh approaches.

The majority of the spending will be made by large corporations that are well established in the energy industry. Some of the oil companies are already getting involved in alternative energy. The car companies must design and build more fuel efficient cars. Over time, nearly every energy-using device will be redesigned.

While the majority of the nuts and bolts spending will be made by major companies, many innovations will come from small companies. Some will grow their ideas, others will be bought out by the majors.

The move to a greener energy future will create a myriad of investment opportunities. The most obvious will be the companies involved directly in generating green energy. Many jurisdictions have mandated or will mandate that a certain proportion of the electricity sold by the power utilities in that jurisdiction must come from green sources.

OPPORTUNITIES FOR INVESTORS IN MANY FORMS

That means that alternative energy producers can charge higher prices than the utility would otherwise pay, and thereby achieve a reasonable return on investment, even if the green energy would not otherwise be cost competitive at this time. The mandates and the subsidies will provide time for the green energy industry to mature: to improve the technology and to produce equipment on an economic scale.

Many small companies will enter the green energy field to produce power and take advantage of the growing demand for green power. Start-up companies will evolve into major power corporations.

Manufacturers of green energy generating equipment will see business soar as more and more producers install green power production facilities.

Businesses that use energy will benefit to the extent that they can reduce energy unit costs and energy consumption. For example, a mine in a remote location might install a wind generator to replace costly diesel fuel and thereby improve the bottom line.

Consumer products will evolve to become more energy efficient. Existing products will be improved and new technologies will emerge to allow existing products to use less energy. A myriad of new products will emerge to help consumers save energy.

Undoubtedly, most of the benefits will accrue to the large companies. For example, General Electric will sell a lot of compact fluorescent lights. Along the way, numerous small companies will also arise and prosper.

We will present more details about these topics in coming issues. For now, the point is simply that the evolution to a more energy friendly world represents a phenomenal business opportunity in numerous ways.

SMALL COMPANIES AS INNOVATORS

In nearly every industry, a large portion of the innovations come from small, entrepreneurial companies. It will be the same with the evolution to a new energy era.

Small companies are already well advanced toward innovations in this field:

- A miniscule company that employs some of the world's leading experts in photovoltaics ("solar cells") has developed a new way to produce the silicon layer at the heart of solar cells at a huge cost saving over the present method.
- A tiny company is about to implement a technology that can significantly improve the energy output from wind generators.
- A start-up company has developed a key component that is essential to the working of the hydrogen fuel cell, a technology that will play an important role in the new energy era.
- An inventor, working in his garage, has derived a means of improving the efficiency of space heating systems. He installed his simple technology into a commercial greenhouse and cut energy use by more than 75%. That same technology might be applicable to every heated building.

These are all real examples and are situations that we are presently evaluating as potential investment opportunities. They are

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examples of the multitude of innovators that are now hard at work, and looking for investment capital to carry their ideas and products to mass markets.

Many of these companies are privately held (that is, they do not trade on stock exchanges). As private companies, they are typically out of reach for most investors. One way to gain access to the big potential returns that come with early stage technology deals is through venture capital funds.

We will be examining a great many such businesses, looking for those ideas that can have a meaningful impact on the energy market – and deliver big returns to investors. We will present our top choices in coming issues of this newsletter.

NOW IS THE TIME

The idea that the world would one day run out of oil was first put forward in the early 1970's. At that time, those predictions of an end to oil were ridiculed. The oil industry experts were certain that there was decades of oil left in the ground.

The experts were right: There was enough oil for decades. It's just that nearly four decades have now passed since those estimates were made.

Let us be very clear: We are not suggesting that one day in the near future the oil wells will run dry. But, it is very clear that the level of oil production will stop rising sometime in the next decade.

The population of the world continues to rise at an alarming pace. Adding to the population pressures, the industrialization of Asia and other areas is increasing the energy usage per capita. Total energy usage continues to soar.

In the face of steadily rising demand, and a limit to growth in production, it is abundantly clear that the world must start now to seek alternatives to oil **AND** to reduce our energy usage.

Other vital issues add to the imperative that action get underway quickly. Most notably, 88% of all the energy used in the world is produced by burning carbon fuels. The impact on the planet from that level of carbon burning is clear, whether from greenhouse gases or acid rain or choking city smog.

Public sentiment has shifted solidly against forever continuing to burning carbon. Government policy is following the public sentiment and is moving in support of green energy. Even the U.S., which went counter to the rest of the world for more than a decade, has shifted solidly in favor of green energy under President Obama.

Europe and the U.K. are years ahead of the United States, with policies and targets in place to lessen the use of carbon fuels.

A massive mobilization of capital and resources is already getting underway. Over the coming years, there will be an enormous amount of investment in all forms of alternate energy as well as energy saving products and technologies.

Many existing companies will escalate in value as the industry matures. Numerous start-up companies will quickly evolve into multi-billion dollar success stories.

When the markets crashed last year, alternative energy companies were hit even harder than most companies. Adding to the

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general sell-off, the collapse of the oil price led many people to conclude that there was no longer a need for alternative energy.

Investors with a longer term perspective have an opportunity to invest in well-established companies in this field at bargain prices. The start-up companies offer a cornucopia of high potential returns.

Regardless of what happens in the broader investment markets, money is flooding into this new sector now as a few investors with the vision to see the world evolving to a new reality are getting in early.

WHY ARE WE DOING THIS NEWSLETTER?

First of all, we see the evolution to a more energy friendly world as being the biggest investment opportunity ever.

Equally importantly, we feel a huge personal commitment to contributing to a solution. We are convinced that the most effective way to implement change is by allowing the private sector the freedom it needs to get the job done.

An important ingredient in private sector success is having access to capital. Our objective in publishing this newsletter is to raise awareness of the broad issues; but, more importantly, we want to help mobilize investment capital to those companies that are most likely to develop meaningful solutions.

We have already encountered several tens of situations where individuals or small companies have great ideas and great products that could contribute in very significant ways to solutions. All of these situations need capital for further research, development and commercialization. Investors in these situations have the potential to make enormous returns as the products are commercialized.

It can be a winning situation all around: Innovators get funding, investors make money and the planet benefits from ideas that will reduce the burning of carbon fuels and reduce energy usage.

EDITORIAL DIRECTION AND OBJECTIVES

GreenTech Opportunities will focus primarily on a couple of aspects of the evolution to a new energy world:

- Technological advances that stand to become enabling technologies in making green energy production commercially viable. That is, we want to foster advances in technology that help change the world by putting green energy on the same or better economic footing as conventional energy.
- Technological advances that stand to become enabling technologies in using energy more effectively.

We are secondarily interested in companies that use present technologies in order to produce green power. We will point out companies that we believe can achieve exceptional rates of return as producers or suppliers of equipment. However our primary focus will be on new technologies.

There is an enormous momentum building in the green energy sector. It is inevitable that there will be a huge effort dedicated to innovations, whether incremental steps from existing technologies or brilliant new concepts. We are on the lookout for

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investment opportunities among those innovators.

We are in the process of assembling a team of experts in this field to keep on top of what is happening in the industry and also to evaluate and conduct the due diligence on specific investment opportunities. In addition to full time staff, we plan to establish a network of advisors and contributors.

For the next couple of issues, we will present several articles that will provide understanding of and insights into the traditional and the alternative energy markets and technologies. Please note that this publication is intended to provide an overview of the industry topics. Readers can refer to numerous other sources to get more details and more precise figures than are presented in the overviews and summaries in this publication.

Once we have laid the groundwork in terms of general understanding of the industry, we will be presenting specific companies as investment ideas. Our focus will be primarily on small companies that have achieved or are working toward technological advances that will have a substantial impact on either energy production or energy efficiency. The focus on small companies is based on the premise that a large proportion of new discoveries, in any field, are achieved by small entrepreneurial groups. Out of necessity, our coverage of companies will be on those companies whose shares are publicly traded.

Investors must be aware that investing in early stage companies is risky, as they may not be successful at developing or commercializing their products.

Investing in research and development companies is appealing because a new discovery can have a massive impact on the value of a small company, driving the value by ten-fold or even a hundred-fold.

Finally, we intend to make this an interesting journal that will provide general awareness of an exciting new era.

VENTURE CAPITAL FUND

Full Disclosure Notice:

The principles of GTO and their friends, relatives and associates will be investing in and be involved in the management of a venture capital fund that will invest in companies in the same field as companies covered in this publication.

GTO will make every effort to avoid conflicts of interest, and in any event, will disclose when a company discussed in GTO is owned by the venture capital fund or where there may be other potential conflicts of interest.

It is intended that the venture capital fund will invest primarily in private stage companies. As such, those companies would not normally be covered in this publication. However, the fund may invest in publicly traded companies. Furthermore, investee companies of the venture capital fund may at some time begin trading as public companies. As those companies become available for investment by the public, they may be presented in GTO (with full disclosure), provided that they meet the investment criteria.

Regrettably, the venture capital fund will be a private entity, and investment in the fund cannot be offered to the public. Shares are only available to accredited investors and only a small number of investors can participate.

TOPICS IN UPCOMING ISSUES:

Glossary of terms: fossil fuels, carbon caps, renewable energy, greenhouse gas

Changes in the energy mix over the past few decades.

The oil market: Where oil comes from, who uses it; OPEC; offshore oil; “peak oil”; heavy oil; oil sands.

The natural gas market: Where it comes from, who uses it; transporting natural gas; shale gas; deep gas; natural gas liquids; gas hydrates in the Arctic and in deep oceans; coal bed methane.

Coal: abundant but destructive; where it’s found and how it’s used; coal gasification; clean coal technology.

Global warming: how greenhouse gases warm the planet; the evidence for and against global warming; government policies in place and coming; carbon capture.

Nuclear: controversial and expensive; disposing of nuclear waste.

Bio-fuels: were the government subsidies well spent?

Alternative energy sources: Hydro, solar, wind, geothermal, tidal, waves, hydrogen fuel cells, batteries, nuclear fusion and other emerging technologies.

Conservation: It’s cheaper to save energy than to produce more; huge cost benefits to becoming fuel efficient; technologies to reduce energy consumption

Investment ideas: After the next couple of issues, we will present specific investment ideas in each issue.

The founders of this publication are the staff of ResOpp Publishing Corp.

MEET THE TEAM:

Lawrence Roulston, Editor and Publisher: After studies in science, engineering and business at the University of British Columbia, he worked for nearly twenty years as an analyst and manager in the resource industry. In 1998, he founded Resource Opportunities, an investment newsletter focused on the mining industry. He established an impressive track record, with a particular knack for picking emerging companies that delivered ten-fold or better returns. His passion for the environment and strong affinity for emerging companies led to initiating this project, in part to help make a better world for his three children. He will oversee building the team and will continue to participate as an advisor and contributor.

Marina Trasolini, Geologist and Analyst: After completing a bachelor of science in earth and ocean science and a bachelor of education in secondary science at the University of British Columbia, Marina worked in precious metal exploration where she gained valuable hands-on experience in the operations that power a mineral exploration company. She now works as a research analyst for Resource Opportunities where she produces in depth research on the metals market and junior mining and exploration companies. Marina’s keen passion for business has led her to study an MBA, part-time at the University of British Columbia. She hopes to make a difference in the world by getting involved in the green-energy sector.

Katy Severs, Business Development Manager: Katy has been working with Resource Opportunities for the last 5 years, after obtaining a Bachelor of Arts from the University of British Columbia in 2001. Katy manages the newsletter's marketing and media strategies, and is responsible for sales organization and development. She conducts company and sector research, contributes editorials, and attends property visits as part of the due diligence that Resource Opportunities provides. Katy has been successful in building strong relationships with newsletter subscribers and has extensive industry contacts. Katy feels very optimistic about alternative energy, and is looking forward to sharing research and investment strategies with subscribers as we move towards a greener future.

Laura May, Analyst and Accountant: Upon graduating with a Bachelor of Business Administration and a Diploma in Accounting, Laura worked in the accounting department of a large corporation. After joining Resource Opportunities, she took charge of the company's finances, as well as doing stock market and commodity research, analysis, and report writing. Her passion for analysis has led her to pursue the Chartered Financial Analyst (CFA) designation. Laura is excited about working towards greening the planet while contributing to investors' bottom lines.

Sabrina Reid, Marketing Communications Coordinator : Sabrina graduated from Simon Fraser University with a bachelor of business administration with concentrations in marketing and human resource management. Upon graduation Sabrina worked at Gibson Marketing for several years, gaining valuable experience with industry newsletter writers, media, and resource companies. She now works with both Lawrence Roulston and Cambridge House International developing and implementing marketing programs to individually increase exposure, attendance, and subscription rates. Sabrina has always had an interest in the green energy sector and is looking forward to seeing how green technology will fuel our future.

The team will grow over the coming weeks as we bring on people with expertise in various aspects of the alternative energy field.

CONFERENCES

Calgary Resource & Clean Energy Investment Conference

Telus Convention & Exhibition Centre

April 4-5, 2009

“Featuring a world class line-up of speakers, covering all types of direct investments in resource public companies, speculative investing, resource exploration, oil & gas, world outlook, investment strategies, and more!”

www.goldshow.ca

Greentech Investment Conference

San Diego Convention Centre, California

October 17-18, 2009

Despite the tremendous interest in alternative energy among individual investors, there are no major investment conferences bringing these opportunities to this huge market. GreenTech 2009 will be the preeminent opportunity for investors to learn more about alternative energy and cleantech companies, and how investments in this sector can pave the way to a greener world. Dozens of today's top scientists, analysts and professionals in solar, wind, geothermal, nuclear, smart grid, transportation, biofuels, energy storage, nanotech and every aspect of greentech will make dynamic presentations during this two day event.

