Untapped Profits in Energy

International Information & Investments

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Executive Summary

"The true measure of all wealth is in productivity" and the basis of all productivity is energy.

There are two avenues of profit in this, finding cheaper sources of energy and cutting energy usage. One is productive, the other counter, and both depend on outside solutions controlled by politics, bureaucratic restraints and market competition for limited sources and solutions.

The world has divided into three superpowers: American military, Asian productivity and Middle Eastern energy. Geo- political boundaries have given way to corporate "nation" structures embroiled in a "Business is War" struggle to achieve tactical advantage and capture market share. As examples, the products of this competition are interests such as IBM, Microsoft and Google who find an advantage and rise to the top.

These companies become successful by taking new Technology and creating a market, not through conservation and austerity. They were bold enough to turn vision into reality, but without recklessness. For success requires both innovation and sound strategies that ensure growth, maintain quality, limit risks and capitalize on the information that leads to innovation.

As dwindling resources, rising prices and environmental concerns dominate the energy sector, corporations move toward conservation. There is political controversy over opening protected reserves and expanding nuclear generation; and there is renewed focus on hydrogen power, "green" energy and other alternatives. But none of these are solutions, they are all inside the box attempts to compensate in a field that has had no significant technological advancement in over 50 years.

This white paper identifies new technology that bypasses 60 years of unsuccessful attempts in Deuterium Fusion (heavy hydrogen) with a commercially viable process that every star in the Universe uses, hydrogen to neutrons to helium. Since this process is nuclear, a gram of hydrogen produces the energy of a ton of coal, profit margins are based on $0.01 versus $50.00 per ton costs and the only by-products are environmentally inert helium and energy.

Energy Costs

Every business is affected by the price of energy, either as a direct 70% material manufacturing cost or as indirect compounded expenses that range from lighting to transportation. There is no escaping the market forces, diminishing resources and increased (demand) competition will increase prices.

➔ Drivers

There are currently three primary energy sources (oil, coal and natural gas), two secondary sources (nuclear fission and hydroelectric), followed distantly by alternative sources (wind, solar, geothermal, methane digesters and tidal power). Hydrogen is not a source, it is a refined product that is “stripped” from oil during “cracking” or extracted from water by electrolysis. Hydrogen is expensive because in either case 60% of the available energy is lost as wasted carbon or thermal losses in the generation of electricity from electrolysis.

By far the least expensive, at a fifth the price of oil, coal is responsible for slightly over half of the world’s electrical energy production. However, high mercury and sulphur content necessitate very costly emissions controls, which make coal the least attractive primary energy source. Natural gas is clean except for CO_2 emissions, but transportation and storage problems make it expensive. And oil, being the most readily available and usable primary source makes it the most desirable and the most expensive form. Hydroelectric generation is at maximum capacity and nuclear generation, because of the stringent safety requirements and extremely hazardous wastes costs, the initial investment is approximately $500 million just for approval of a 1200-megawatt plant. So Nuclear power generation is the most expensive. Alternative sources are alternative because of resource, technical and economic limitations.

The cost of energy is determined by the primary oil source, OPEC, and the three major producers, Phillips-Shell, British Petroleum and Exxon-Mobil, who each hold $2 trillion in oil lease reserves. They determine the price of crude oil based on its quality, demand and reserves. Reserve estimates, at a 77 million barrel a day consumption rate, vary from 15 to 50 years but each major oil producing country only outputs about 1/20th of their stated reserves annually. One thing that is certain is that technical recovery problems, decreasing reserves and increasing demand will increase prices and the prices of other energy sources increase proportionately.

➔ Counter Productive Solutions

Energy saving and emissions reducing solutions have developed in response to rising prices and increasing pollution concerns. While these have helped, they are expensive and have limited effectiveness. Because of the Laws of Thermodynamics the maximum usable energy in any combustion-based process is only slightly over 40%. This means that no matter what technical innovations are incorporated to increase efficiency, only 40% of the energy in coal, oil or natural gas is usable and the rest is wasted heat.

Direct energy conversion processes such as fuel cells are about 60% - 80% efficient but are simply too expensive because of the precious metals, such as platinum and palladium, to be practical in large-scale energy conversion. In addition, from an environmental standpoint, any hydrocarbon fossil fuel conversion process produces about 3.5 pounds of CO_2 for every pound of fossil fuel consumed. As a result, any benefits from energy saving and emissions reducing solutions are limited and overshadowed by cost factors associated with shrinking resources and growing demand.

Since the advent of the hydrogen bomb there has been extensive research into nuclear fusion of deuterium (heavy hydrogen) into helium. Two approaches, Cold and Hot fusion, have been extensively studied, billions of dollars a year have been devoted to these efforts for over 60 years, and no significant results have been obtained. The reason for this is that the nucleus of a hydrogen atom contains a charged particle called a proton. Since like charged particles repel, all attempts to force these nuclei to fuse requires extreme technical solutions and release less energy than can be realized from the process.

While cold fusion has achieved some success in regard to sustaining a reaction, no practical amount of energy in excess of the energy required to cause the reaction has been achieved. Thus, in over 60 years the only deuterium fusion reaction that has been successful is that of the hydrogen bomb and that approach has no practical commercial energy generation application.

➔ Straight To The Top

There is a type of fusion however, which is the basis of every star in the Universe. It consumes regular hydrogen (not heavy) and converts it into neutrons, which then react to form helium with the release of nine times more energy than is needed to make the neutrons. At the time of the H-bomb this approach was discarded because on one knew what neutrons were or how they formed.

Harkins first predicted neutrons in 1915 as the “glue” that binds protons together in atomic nuclei. Chadwick detected them in 1932 and they have been extensively studied ever since. They are neutral particles (without electric charge) that are radioactive decay into proton and electron of a hydrogen atom after about 1,000 seconds. They are also very slightly heavier than a proton and

unique in that they possess a magnetic field even though they have no charge.

Harkins first predicted that they were hydrogen atoms that somehow “captured” their own electrons. In 1941 Borghi independently came to the same conclusion and set about trying to make them. In 1955 he successfully accomplished this and verified it by transmuting atoms (changing one element into another). The rest of the scientific community disputed both Harkins and Borghi because they could not show how their theory agreed with the generally accepted Quantum Physics. It is known that stars transmute hydrogen into neutrons, that some atoms “capture” their own electrons (called K-capture or Beta capture) which changes one of their protons into a neutron, and that neutrons released in nuclear reactors do combine on their own to form helium. However, other than precisely measuring all their known characteristics, no progress was made in explaining the neutron until 2002. At this time a model was developed from the neutron based on Quantum Physics and Relativity by William Gray.

This model successfully explained and calculated all known parameters of the neutron by showing that they are special high-energy quantum states of hydrogen atoms. It showed why they have no charge, their exact mass, their peculiar magnetic value, and their “spin” (why they emit a neutrino on decay, but more importantly the model explained how they bind protons together in atomic nuclei.

From this model it was explained how they form a helium nucleus and released energy. It was determined that stars do this by gravitational force but that electric and magnetic forces could accomplish the same result and the concept of neutron fusion was developed. A patent was applied for and a prototype was designed

and built to verify that neutrons could be synthesized from a proton and electron and then reacted to form helium with a release of energy.

In this particular type of fusion there is no charge force to be overcome, as with deuterium fusion. Because of this the process releases nine times more energy than it takes to form neutrons from hydrogen. Further, since the process converts regular hydrogen into neutrons, which then naturally transform into helium there are no radioactive wastes except for electrons, which are transformed directly into electrical energy, thus rendering the process environmentally safe.

Since the process is nuclear the energy released is considerably greater than what would be released by combustion of hydrogen. By way of comparison, the energy released in converting one gram of hydrogen into neutrons and then into helium is equivalent to the amount of energy that would be released from the combustion of a ton of coal. In dollars and cents, this means that $0.01 worth of hydrogen fuel would produce the same energy as $50 in coal, and would virtually eliminate the 70% fuel cost in the generation of electrical energy.

Conclusion

The neutron fusion process is commercially viable with present technology and represents the first breakthrough in energy production since the development of nuclear fission energy generation 60 years ago. There are no radioactive wastes to deal with and it eliminates the fuel costs in the annual US $100+ billion wholesale electrical energy generation market, $400+ billion globally. The conversion of the released energy into electricity is direct, eliminating the need for a boiler, steam turbine and generator. The cost for the construction of a 300 MW plant (enough to power 250,000 homes) would be in the order of $25 million and take approximately one year.

Other applications of the process would be generation of hydrogen by electrolysis for elimination of fossil fuels (a $2 trillion annual market), desalinization of water, and replacement of large diesel engines or steam turbines in transportation applications such as trains and ships. The synthesized neutrons would also serve as a decontamination method for the millions of tons of currently stored radioactive wastes from nuclear reactors and as a high-energy cancer treatment method since the neutrons can pass through healthy tissue to react at a tumor site.

More Information

For more information, please visit www.i-3-inc.com or contact International Information & Investments, P.O. Box 255456, Sacramento, CA 95865, Telephone (888) 409-2909.

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