

Pre-History To Development

During the middle to late 1970's, the industrialized nations of the world came to the bleak realization they no longer controlled their own capacity to produce goods and services.

This alarming condition developed because the majority of the world's remaining energy reserves were no longer in their control.

IN SEARCH OF OIL:

The Western World had enjoyed several centuries of unchecked industrialization, and showed no signs of slowing in the early 1970's. At the beginning of this industrialization period, wood was the primary source of energy. When wood became scarce and inefficient, coal became an abundant source of energy to further spur economic expansion. Coal, however, gave way to an even more efficient, cleaner, and seemingly more abundant fuel source -- oil.

Countries such as the United States were still expanding their industrial bases at such a rate that energy reserves equivalent to an Alaskan oil field needed to be discovered every 90 days so the existing fossil fuel demand could be met. However, during the middle to late 1960's, the United States also discovered that the oil pressure in its productive fields began falling dramatically. Oil fields that once supplied vast amounts of energy to the greatest industrialized countries of the world were simply beginning to produce less and less, at a time when energy needs were growing daily.

In 1965, the United States imported about five percent of its oil. By 1975, the U.S. was importing more than 40 percent of the oil it needed to maintain its industrial base. This was necessary because oil pressure in productive fields was dwindling, and it was not economically feasible to attempt secondary recovery processes to revitalize these fields.

The U.S. and other industrialized countries, such as Japan, Great Britain and West Germany, could no longer count on their own energy production to keep their economies healthy, but without energy, their economies would fail—continued industrial growth would be simply impossible. Although the industrialized Western countries imported oil from Middle East nations to keep their economies afloat, they were looking forward to the day they could become energy independent through the use of the next energy source--nuclear fission.

THE FALSE HOPE OF NUCLEAR ENERGY:

Just as coal replaced wood and oil replaced coal as the primary fossil fuel, the industrialized countries were looking for the replacement of oil by nuclear energy. Although there were technical problems with the use of nuclear power plants, their use became popular. There was hope that the problems with nuclear plants would be solved as they were used. For a time, the future of nuclear

power plants looked promising, but then it became clear that nuclear engineers could not solve the major problem of "the hourglass effect." Basically, the nuclear energy production process inherently caused the power plants themselves to deteriorate. The constant handling of uranium, contaminated water, steam and air quickly alters the physical properties of welds in pipes, valves and other structures within the nuclear power plants. Power plants that cost billions of dollars to build had working lives of a little more than two decades. Many of the first nuclear plants built are now being taken off line because they have absorbed as much contamination as possible without suddenly falling apart during use--causing a disastrous accident.

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CHINA DESIRES:

Interestingly, at the time the West began importing oil and discovering nuclear plants were not the savior they had anticipated, China began opening its doors to Western technology. What the West had accomplished in several hundred years would take China only a matter of decades to duplicate. China, with a-quarter of the world's population, was eager to obtain the same goods and services available to the rest of the industrialized nations. To do this, it was obvious they had to compete for the same oil that was already in great demand by the West; thereby perpetuating the world-wide energy gap, as shown in Figure 1.

OPEC CONSPIRACY:

Obviously, countries such as the United States did not enjoy relying upon the Organization of Petroleum Exporting Countries (OPEC) for energy. Figuratively and realistically, the Middle East oil-producing countries had the Western economies over a barrel. A sudden reduction of oil flow from OPEC to the West would create havoc with the world's industrial base. What industrial leaders feared most became a reality in the oil crisis of 1975.

The nations of OPEC realized their desert oil fields were crucial to the industrial well-being of the rest of the world. Knowing they controlled a popular commodity, and adhering to economic laws of

supply and demand, the OPEC -nations reduced the amount of oil they were exporting and increased its price. Because the supply of oil was reduced, competition increased for the oil available on the market. This further caused the cost of OPEC oil to spiral upward.

The industrialized countries were paying inflated prices for oil to keep their economies stable, if not in expansion. But the OPEC oil became so costly, the goods and services produced through use of the oil also became costly—to the point that product consumption decreased, industry production decreased, people became unemployed, and economies began to falter.

THE SCRAMBLE TO DEVELOP ALTERNATIVE FUEL

SOURCES:

When economic hardship became a reality due to the oil crisis, Western government began to scramble to develop alternate fuel sources to supplement dwindling oil reserves and an unrealistic nuclear energy promise. The administrations of Presidents Gerald Ford and Jimmy Carter declared energy independence as one of their paramount goals. Work was intensified to find a viable energy source through exotic solar, wind and chemical devices.

THE NEED FOR NEW TECHNOLOGY:

Industrialized countries were caught in a dilemma. While the Western industrial base was becoming more and more dependent upon energy supplies that could evaporate at any time, work was being done to develop the technology to make the exotic energy sources viable on a large scale. Unfortunately, the West became more dependent upon foreign oil daily and the exotic forms of energy production did not become economically feasible.

Solar, wind and chemical devices usually require as much, or even greater amounts of energy to use than the amount of energy produced through their use. These devices are sometimes so costly to construct because of exotic materials needed or space required -- i.e., solar panels), that even the use of high-priced oil is more cost effective. Technology relating to solar and wind energy, for example, are limited to small geographical areas. Even for persons living in desert areas, the construction of efficient solar panels to energize homes would require great space and great cost. The problem would be even more exaggerated for industrial applications.

OPEC DWINDLING OIL RESERVES:

Complicating the energy dilemma even further, many of the indicators that became apparent prior to the reduction of pressure in U.S. oil fields seem to be taking place in the oil fields of the OPEC nations. Even if OPEC keeps oil sales to the West steady and the price of the oil low, the existence of their crude reserves may be dwindling. Without the abundance of OPEC oil, economies that are momentarily healthy would begin to suffer similar problems of the 1970's, except this time it would be more disastrous.

Even so, the industrialized world depends on foreign energy to maintain its economies. And energy independence seems hopeless through nuclear or exotic energy production because of application

problems and cost. Returning to coal and wood for energy would be costly and inefficient, would perpetuate the pollution problem and even be difficult because of availability of the materials.... Also, industries are geared for the use of oil--retooling and returning to the use of coal and wood would require years or even decades to accomplish.

SURVIVAL OR ELSE:

It is obvious the world needs an answer immediately to the energy problem. Industry, governments, and the average person do not have decades to wait for energy answers--especially if oil supplies from the Middle East were to be suddenly halted. If supplies were halted, there would be no time to revert back to outdated fuels or finalize technology for new fuels. Without fuel, industries would close; farmers could not plant nor harvest; economies would collapse; masses of people would starve.

Naturally, before that calamity, governments would intervene to ensure their oil supplies were maintained. The use of military force in the Middle East would be a viable alternative to economic collapse and mass starvation. Should a military confrontation occur, however, refineries, oil supply line equipment and hardware would be destroyed. Refineries, supply lines, pumping stations, etc., would take years to replace. Industrialized countries would still be without their lifeblood in the interim.

WHERE TO LOOK AND WHY?:

It is apparent that if the world community desires to maintain or improve upon its current lifestyle and avoid eminent military confrontations, a new, free and abundant energy-fuel source must be developed soon. Wood, coal, natural gas, oil, solar, wind, hydroelectric, and nuclear energy sources have limited applications, limited supply, high cost, and sometimes create undesirable by-products. A new energy source must be discovered that is readily available, economical to use, and creates no detriment to the environment. Because there is no time to waste on extensive research, the new energy source must also be flexible and adaptable to all forms of industry, residential and transportation applications.

Scientists everywhere agree that the only plausible solution to this enormous problem would be the use of one of the world's most abundant, most powerful elements on the face of the earth. That is hydrogen. After all, the earth's surface is 75 percent water, of which two-thirds is hydrogen. If only this hydrogen could be harnessed effectively, the world's energy problem would be solved almost instantly.

Although researchers hoped nuclear energy would be the answer to the planet's energy needs, the idea of using hydrogen from natural water has even a greater dream. The thought of pouring ordinary water into a mechanical device for energy is quite inviting. After all, how much does rain, snow, river or lake water cost. What ill effects could water have on the environment? The by-product of hydrogen and oxygen during the combustion process is water vapor.

Hydrogen has been used as a fuel source before, but with limited success. Extracting hydrogen from water for use as a fuel has proven even less fruitful. There are four major technical questions

that must be answered before natural water and the hydrogen it contains may be used as a fuel source. These questions are: how to produce the hydrogen (extract from water) economically; how to control the rate of the hydrogen production; how to adjust the burn rate of the hydrogen to co-equal that of fossil fuels; and how to transport the hydrogen gas without spark ignition.

Although the hydrogen has been used as a fuel, primarily in laboratory experiments and models, it has always taken a great deal of energy just to produce hydrogen or extract it from water. As in other forms of experimental energy sources, hydrogen has been too costly to use. Aside from cost, just maintaining production of hydrogen has been found to be difficult. Erratic production characteristics further limit dependability. Also, hydrogen has been found to be extremely volatile (two and a half times more powerful than gasoline), even in a laboratory setting. Finally, no one has successfully demonstrated how hydrogen can be transported safely. Even if the previous problems were solved, hydrogen's use would still be limited because transmission of the gas would be impossible.

THE INVENTION:

One man, with a relentless desire to solve the world's energy problem, has now answered questions that before prevented man from using hydrogen on a wide scale. Stanley A. Meyer from Grove City Ohio, has been working since 1975, since the near disastrous oil crisis, to make the United States and other industrialized nations free from dependency on OPEC oil. He did this by inventing and perfecting the "WATER FUEL CELL".

The Water Fuel Cell uses natural water (such as tap, lake, river, snow, rain, distilled, reservoir, pond, or even ocean water) and produces hydrogen efficiently (with hardly any energy input) for use as fuel. What's more, Meyer not only can produce the gas cheaply, he has also discovered how to control the rate of the gas production, adjust the burn rate of the hydrogen to co-equal the burn rate of fossil fuels and transport the gas safely.

Because of these landmark discoveries, the gas may be used in any application. The hydrogen gas may be used in industry, office buildings, the home, the farm, in automobiles, in airplanes, and in boats. In short, wherever energy is needed, Meyer has the capability to extract hydrogen from ordinary, natural water and use it as fuel.

Since he has the four major questions answered with his Water Fuel Cell, the system can be easily retrofitted to any existing energy-consuming device. There is no need for re-tooling oil-using industries for exotic fuel usage. Automobiles or their engines will require only minor adjustments (hardly any to the engine) for coupling with the water fuel cell. The same can be said for homes and other buildings and their natural gas and electric furnaces. And Meyer has found a way to transport the hydrogen gas even more safely than natural gas.

When Meyer began working on the fuel cell a decade ago, his engineering, industrial, and business background provided him with the realization that highly technical developments rarely came through governments or multi-national corporations. It is historically proven that individuals or small groups of individuals see a need and are able to fill the need with their own creative thinking. United States and foreign patent law substantiates this premise by awarding the patents only to

individuals.

THE ECONOMICS OF THE INVENTION:

Realizing this, it was also obvious that economic law would dictate his success. The person devising the cheapest solution to the energy problem would "win out." So, in order to be successful in bringing his new and revolutionary Water Fuel Cell into the market place without losing control of the discovery to outside economic and hostile forces, several conditions had to be met.

First, there could be no prior patents pertaining to a water fuel cell device. If someone had prior patents, his attempts to devise a system could be lawfully halted.

Secondly, the system had to be made of very readily available materials; again stressing that there is not time to develop exotic or elaborate systems. Use of "off the shelf" materials also prevents unscrupulous suppliers from effectively stalling the construction of the fuel cell.

Thirdly, the invention must be simple enough for construction in a garage or backyard. This again prevents control by elaborate manufacturing processes.

Fourthly, a person must have the capability to build a system in one day. This would allow the country to mobilize extremely fast in the face of another energy crisis.

Finally, the same engineering design criteria must apply to all of the systems, regardless of the power output of each system. The same principles had to apply to the laboratory models up to the megawatt facilities for industrial applications.

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