

A MODEL FOR COMMERCIALIZATION UTILIZING PATENTS

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The biggest impediment to commercial development today is lack of widespread demonstration devices and firm scientific understanding of the mechanism or mechanisms responsible for variously reported cold fusion and enhanced energy effects. With scientific understanding, the possibility of commercial amplification and replication could rapidly occur, which would quickly spawn a wide variety of initial commercial products.

The commercial development of cold fusion and enhanced energy devices will probably follow a normal cycle of science > technology > commercial products. First generation products will probably take advantage of 50 - 100 degrees C heat output, and move to higher temperatures with increased product sophistication.

The first tier of entrepreneurial companies are already active in the field. With market maturation, inevitable second stage consolidations and joint ventures will occur. In the third stage, the technology ultimately will best lend itself to optimum development by large multi-national companies who already have a well-established business infrastructure in place. Speed of technology dissemination will be crucial.

Our model examines the role that patents, as a basic building block, play in the commercialization process. Patents are generally granted to citizens of a country to promote overall technological advancement. The basic concept is that in exchange for an inventor laying open their ideas to the public to stimulate innovation, their government will grant an individual monopoly use of the invention for a period of time, typically 17 -20 years. In the U.S., patent rights were granted to citizens in the original constitution.

Patents essentially are the property of the inventor, just like real estate or personal property. The patent holder can exclusively determine, via license or assignment agreements, who shall be allowed to make, use, or sell products that embody their patented property. Internationally, there presently exist a well established patent infrastructure, known as the Patent Cooperative Treaty (PCT) that protects and facilitates the filing of patent applications in over 70 countries. International patent rules are also influenced by General Agreement on Trade & Tariffs (GATT), another well established system to facilitate commercial transactions.

Timing and priority dates for patents are important. There is an early need to file for cold fusion patents now, even under conditions of some scientific uncertainty in order to protect the commercial rights of inventors later. The first step, of course, is to make a

discovery or conceive an invention. The next step is to verify an innovative concept and reduce it to practice by an experimental device. You can obtain a patent on a device even though you may not understand why or how it works. For example, you can patent a new fishing lure even though you have no idea why fish like it! "Theory patents", without experimental data and devices, won't be successful in areas of new technology.

Once you have reduced an invention to a device that can be uniquely described in a specification, you should obtain enough operating data to substantiate your claims, and then file a patent to protect your rights (Figure 1). Generally, once you file in your home country, you have a year to determine in which foreign countries you intend to seek protection under a PCT application. Finally, you can reap the financial benefit from the fruits of your labor by presenting your invention to public markets via licenses and products.

Consolidation of individual patent building-blocks into a coherent, well balanced portfolio minimizes scientific and commercial risks while providing maximum market opportunities and commercial applications (Figure 2). The portfolio concept also removes certain intra-mural barriers between contributors and allows direct dialogue and exchange of ideas between inventors to further scientific understanding. During this early stage, co-operation often achieves goals quicker than competition.

ENECO was formed by scientists who wished to take advantage of the economies-of-scale afforded by a portfolio in order to commercialize their inventions, pool resources in a multi-disciplinary field, and share knowledge/network without early competitive barriers. Many of the founding scientists are current shareholders and members of our external **Science Advisory Board (SAB)**. We are a privately held corporation, financed by accredited individuals and commercial entities with the goal of providing a basic commercial structure, utilizing a patent portfolio, to concurrently track and facilitate scientific advancements in order to expeditiously reach a viable commercial stage.

Our basic intent is to non-exclusively license cold fusion and enhanced energy inventions that will serve as basic "competitive tools" or "templates" for our clients. Our "open architecture" licensing format will encourage others to file their own add-on patent improvement in their respective fields. We anticipate that our manufacturing licensees, in order to more effectively compete in their respective markets, will create their own improvements on top of our basic patents. For example, auto manufacturers will develop one set of improvements, while aerospace companies will naturally pursue a different direction. The common thread, however, will be basic cold fusion technologies that energize products in each market.

To build a sustainable competitive advantage, the portfolio must maintain cutting edge scientific leadership and file its own improvements as continuations on the early priority dates of pioneering patents in each sub-category. Judicious mixing and matching of patent

assets within the portfolio enables individual properties to achieve their fullest, value-added leverage for commercial development.

To be accepted into the portfolio, individual invention candidates are routinely screened regarding their scientific merit, strategic fit, economic parameters, priority date and legal position. Philosophically, common goals and good personal "chemistry" must exist between inventor-contributors and portfolio managers to help ensure a mutually productive, long-term relationship.

ENECO's current portfolio has over 40 intellectual properties, including several issued patents. We also have the exclusive worldwide commercial and patent rights to the original Pons-Fleischmann inventions. ENECO has to pursue a balanced portfolio now even though much of the basic science is not yet understood and leading commercial products have yet to be identified. Once a major scientific break-through occurs in any area, it will be too late to go back and try to assemble the right patent package after-the-fact. Now that the initial collection is in place, it could influence the birth and direction of a whole new industry of clean energy.

Potential portfolio assets provide a type of "futures market" of value for current investors. The technological "gill net" provided by the portfolio minimizes risks while we are forced to operate in the presently uncertain scientific environment. Our chances of catching at least a couple major commercial opportunities are enhanced through diversification. The economic parameters in cold fusion development are such that a few winners in this field provide a large enough reward to easily pay for others that don't develop into major commercial applications. Actually, the scientific uncertainty over the past six years has provided a unique opportunity to assemble a comprehensive energy portfolio under one-roof in order to keep resources focused on research and understanding rather than towards unproductive litigation involving fragmented patent claims.

The portfolio provides one-stop shopping convenience and saves valuable time for industrial users who wish to select coherent, al-la-carte license packages to suit their individual needs. Some of the pioneer patents we have already acquired include the original 1989 Pons-Fleischmann inventions. Light water applications include early Bush-Eagleton work at California Polytechnical Institute. Molten salt electrolytes were contributed by Drs. Liebert and Liaw at University of Hawaii. Glow discharge inventions involve early Russian work at LUCH Institute from Drs. Kucherov, Karabut, and Savatimvoma. Solid electrolytes also came from Russia at the Institute of High Temperature Electrochemistry under Dr. Samgin's direction. Cavitation technology includes filings for rotor and rotor-less systems. Transmutation includes early electrolytic Rb to Sr isotope work performed by Drs. Bush and Eagleton. The portfolio also includes trigger/control, RF, magnetic pulsing, efficient thermo-electric converters and related enhanced energy devices.

The common scientific thread that connects various elements in the portfolio enhances understanding from a unique perspective. For example, behavior of current density effects or loading ratios are remarkably similar between electrochemical devices and glow discharge experiments.

From an overall schematic viewpoint, the portfolio is a useful mechanism to perform several requisite value-added services for inventions (Figure 3). For inventors, ENECO's value added processes convert their initial patent applications (raw material) into marketable products that have the highest possible chance for widespread commercial success. The economies-of-scale are provided by a full-time, professional patent staff that performs all the "business partner" needs of inventors while portfolio managers provide scientist-contributors with targeted research and development support and royalty income.

For investors, the portfolio concept provides a rational balance between risk and reward through diversification, to obtain a critical mass of assets to attract investment capital in a "futures market" format.

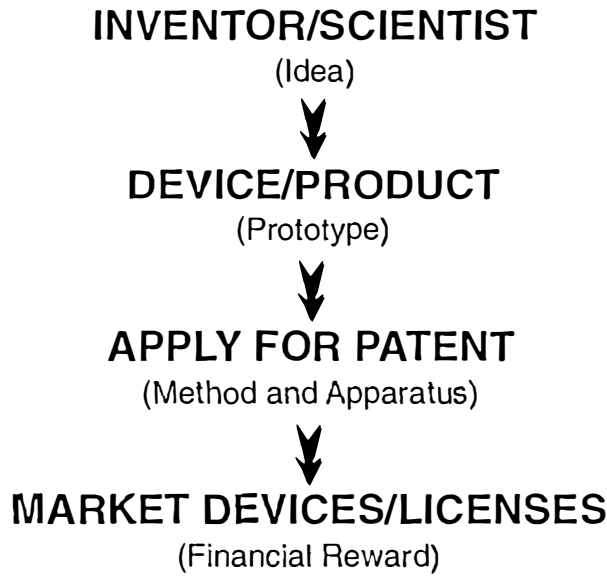
For customers, the logical convenience of one-stop, worldwide shopping for a comprehensive ready-to-go product line suits their individual needs without having to cross cultural boundaries or seek out several different inventors in order to stitch together the patents and deals that they need in order to incorporate cold fusion inventions into their various lines of business.

Providing the market with a comprehensive product line is essential (Figure 4). Customer oriented convenience, time savings, variety, and price are all crucial elements of a successful marketing mix needed for commercial users. A comprehensive product line that contains all these elements will encourage customers to quickly buy and incorporate technologically superior tools into their own lines of business, rather than pursue a slower, less productive route of "invent around" and "steal and litigate".

Our portfolio concept has a successful, and well-established precedent in the field of music and copyright-licensing. The majority of copy-righted music is already distributed through centralized organizations that facilitate widespread dissemination from many different artists through a unified, convenient marketing organization.

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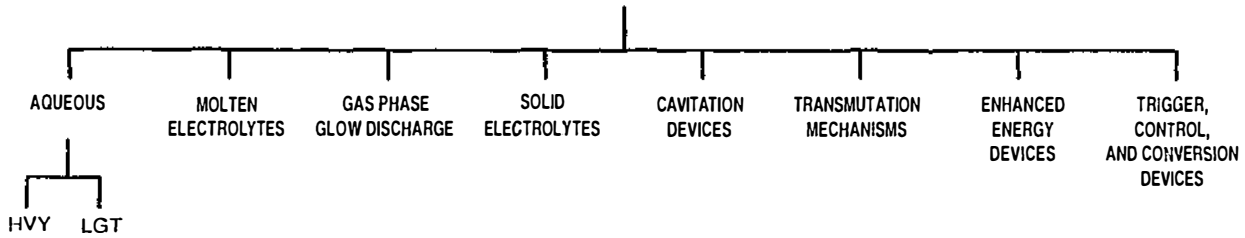


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FIG 1

PATENT PORTFOLIO CONCEPT

ENECO

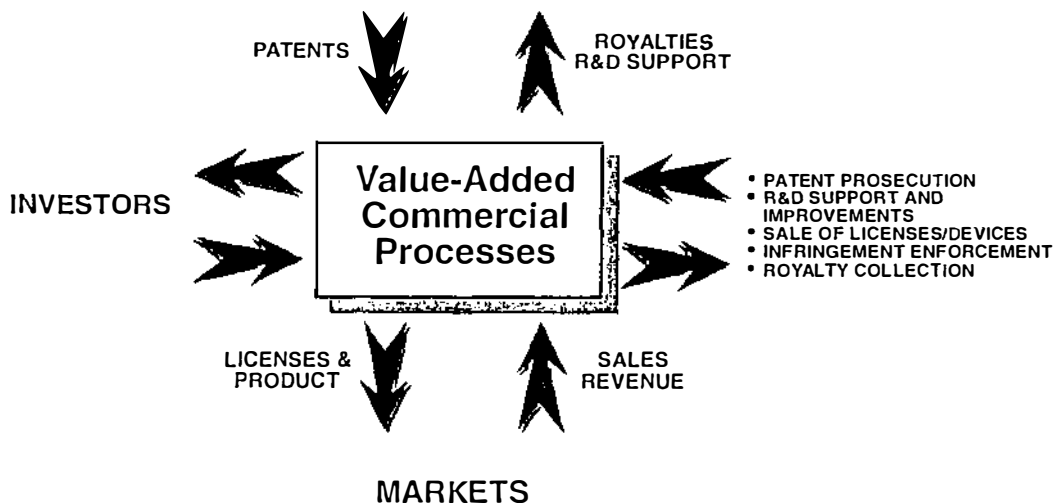


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FIG 2

SCHEMATIC OVERVIEW

INDIVIDUALS, INVENTORS, SCIENTISTS, AND TECHNOLOGY COMPANIES



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FIG 3

DETAILED PRODUCT LINE

- 1) **License:** Legal right to make, use, and sell products.
- 2) **Demonstration Device:** R&D proof-of-concept with operating instructions.
- 3) **Proprietary Materials:** Pre-tested/formulated to yield reproducible results.
- 4) **Information:** R&D updates and technology upgrades to all licensees.
- 5) **Consulting:** To suit specific customer requirements or unique applications.

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FIG 4