

"Ere many generations pass, our machinery will be driven by power obtainable at any point in the universe...it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature."

- Nikola Tesla



ZPOWER

NEVADA USA REPRESENTATIVE OFFICE

3540 WEST SAHARA AVENUE #340
LAS VEGAS, NV 89102-5816, USA
TEL: 1-800-ZPOWR07 (800-976-9707)
FAX: 1-800-962-0448

ARIZONA USA REPRESENTATIVE OFFICE

5025 NORTH CENTRAL AVENUE #414
PHOENIX, ARIZONA 85012-1505, USA
TEL: 1-800-ZPOWR07 (800-976-9707)
FAX: (+001) 602-532-7517

UK REPRESENTATIVE OFFICE

SUITE 343, 8 SHEPHERD MARKET
MAYFAIR, LONDON W1J 7JY, U.K.
UK FACSIMILE: +44-870-138-3628

CALIF. USA REPRESENTATIVE OFFICE

1804 GARNET AVENUE #500
SAN DIEGO, CA 92109-3352, USA
TEL: 1-800-ZPOWR07 (800-976-9707)
FAX: 1-800-962-0448

INVENTION PROGRAM

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The purpose of this document is to outline the vision of ZPower Corporation for the global commercialization of advanced energy technologies.

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ZPOWER STRATEGY DOCUMENTS

- Corporate Profile**
- Overview**
- Global Marketing Strategy**
- Invention Program**
- Technology**
- Energy Revolution**
- Energy Industry**
- Zero Point Energy**



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1.0 THE PATHWAY TO COMMERCIALIZATION

1.1 ZPOWER INTRODUCTION

In a world filled with constant innovation, commercial success requires more than just a good idea, it requires the right balance of technology, able partners, and a high-leverage marketing strategy.

ZPower Corporation was founded in 1995 to facilitate the introduction of commercially viable energy alternatives into a world burdened by outmoded and environmentally destructive energy technologies. ZPower brings together the correct resources to identify and evaluate promising new energy technologies, manage their development, then market them globally. Throughout this process, we work with the inventors to establish rewarding relationships based on performance.

These technologies have been colloquially named "Over-Unity" machines, as their efficiencies are apparently greater than one (i.e. greater than 100%), which many scientists would reject as impossible, assuming the confines of a closed system. However, it appears that these unprecedented performances are attributable to the collecting and converting of energy from a previously unknown source, sometimes referred to as Zero Point Energy.

The global implications of these new energy technologies are vast and the ramifications will not be restricted to pure commercial decisions, but will encompass economic, political, social, humanitarian, scientific, and even philosophical issues.

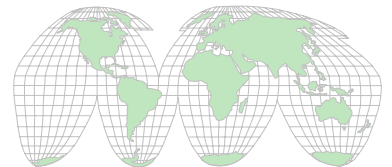
This document is a brief outline of how ZPower can help bring your Technology to the global market, to provide the benefits to the world as quickly and as comprehensively as possible, whilst at the same time providing you with license fees and royalties, in amounts that dreams are often made of (*for more details on Potential Markets and Income, see Appendix 4*).

1.2 HOW WE CAN ASSIST INVENTORS

For many Inventors developing advanced energy technologies, their discoveries represent years of painstaking work and often a lifetime of dedication to realize their dreams, and in some cases their life's purpose. There has been often financial hardship and derision from their peers and the scientific establishment.

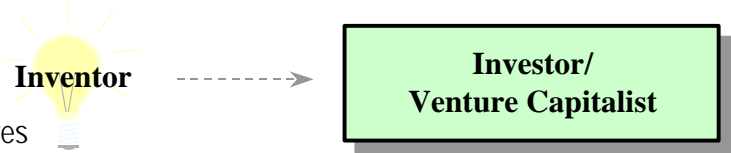
There are numerous claims of successful advanced energy generating devices from Tesla to the present time, and yet none have been successfully commercialized. Many investors over the years have been involved in supporting these inventors, and some have lost considerable money in the process. ZPower has taken note of past experience, the three key associates having been actively involved in this field for some years, and all three having

Helping Inventors,
Corporations,
Universities, and
Governments
commercialize
revolutionary energy
innovations.

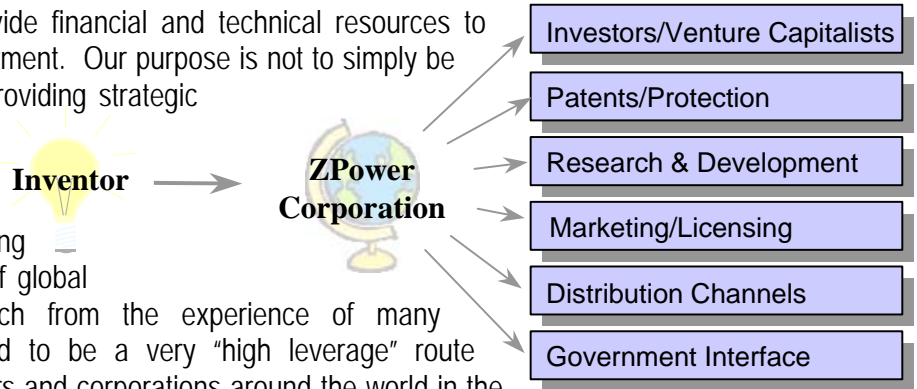


personally invested in various technologies. We have also learned what strategies are required to successfully commercialize these revolutionary innovations, overcoming the challenges of the past (*for more details on our Global Marketing Strategy, see Appendix 2*).

Typically, when an Inventor approaches an investor or venture capitalist for money to commercialize his Technology, the investor wants to see a product he can immediately begin to manufacture and market. Usually the Technology is only at the proof-of-concept stage and requires further development before commercialization begins.



ZPower's approach is to provide financial and technical resources to prepare your Technology for deployment. Our purpose is not to simply be an investor, but a full partner in providing strategic financial, technical, and marketing resources necessary to ensure the commercial success of the technology globally. Our marketing structure is based on a program of global licensing and joint-ventures, which from the experience of many successful companies, has proved to be a very "high leverage" route involving thousands of entrepreneurs and corporations around the world in the profitable deployment of diverse technologies and products (*for an example of a successful licensing strategy, please see Appendix 5*).



We are a full-service technology development and marketing organization, and not an invention submission service. As such, Inventors pay no fees for these or other services we provide. Depending on the relationship structured between the Inventor and ZPower, the Inventor's compensation typically takes the form of a percentage of licensing and royalty revenue.

1.3 SERVICES WE PROVIDE

Once a promising technology is identified, we determine the resources and activities necessary to successfully commercialize that invention. These activities may include developing prototypes, securing international patent coverage, development finance, corporate structures, tax planning, establishing the proper marketing organization, and forming strategic partnerships for licensing, manufacture, and sale to qualified corporations and governments.

Technology Development

To succeed in the marketplace, most inventions require some degree of technical development. ZPower typically prepares each invention for commercialization by passing the technology through a gauntlet of prototype



development and technical certifications, followed by "packaging" of the technology for proper marketing.

Intellectual Property Protection

ZPower strives to achieve the strongest proprietary protection for the innovative ideas we work with, which can include broad international patent preparation, filing, and on-going protection.

Market Research

Before entering into licensing discussions, ZPower analyzes, evaluates, and quantifies the invention's target market. We not only explore the market's size and growth patterns, but also determine its technological needs and trends to better understand the perspective of potential licensees. It is not uncommon for this process to uncover additional markets and new fields of use for an invention, expanding potential licensing opportunities.

Licensing Negotiations and Agreements

ZPower has experience in negotiating and crafting license agreements that create value for each commercialization partner: the inventors, the licensees, and ourselves. Our mutual desire is to maximize the revenue potential of each technology we manage. We determine the best strategy for such issues as whether to license exclusively or non-exclusively, nationally or internationally, for one market or for all markets, at a flat royalty rate or at decreasing or increasing rates, or with a significant initial payment or no initial payment at all.

Building Lasting Relationships

To demonstrate an invention to potential licensees, we may develop and fabricate prototypes, prepare presentations in a variety of formats, and create specialized marketing tools or materials. We use our business network to identify and contact senior, decision-making executives at prospective licensee companies. ZPower negotiates all licensing agreements for the inventions selected for the program. Once a license is executed, we monitor the agreement and may assist the licensor and the licensee in satisfying their obligations. We strive to ensure that each invention is being commercialized to the fullest extent possible.

For more details on ZPower, please see our Overview and Global Marketing Strategy in Appendix 1 and Appendix 2.

To the contrary, after the conception of an invention, the hard work really begins. I call this *the business side of invention*. It encompasses a skein of skills that range from protecting the innovation to providing manufacturing feasibility to evaluating the market potential to finding the distribution channel to defending against copycats and much more -- including raising enough money to go the distance.

ALAN R TRIPP
MILLIONS FROM THE MIND



2.0 INVENTOR - ZPOWER PARTNERSHIP

2.1 TECHNOLOGY STATUS

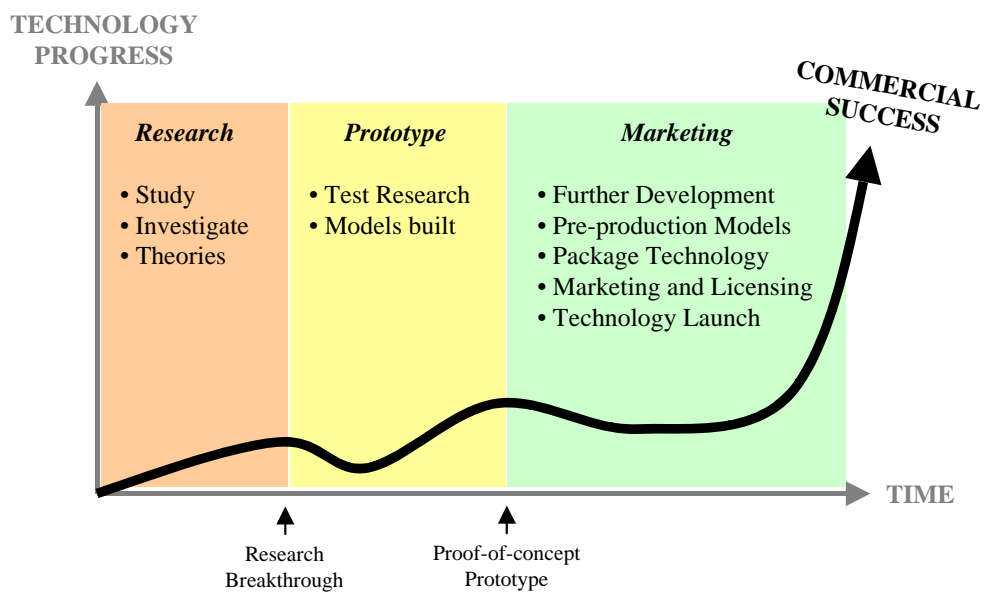
When ZPower accepts an innovation for development and commercialization, we commit our full resources to the success of the Technology, and long-term, mutually rewarding relationship with the Inventor. Therefore, it is important to understand the present status of your Technology to determine how we might serve you properly.

Each technology moves through three important stages: Research, Prototype, and Marketing. It is important to understand what stage your Technology is presently at, and thereby prepare for the work necessary to make it a commercial success.

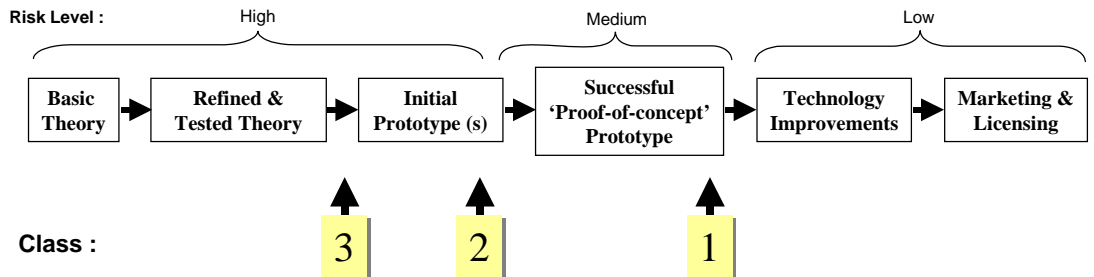
The investment risk of a technology depends on what level of progress the technology has achieved. ZPower prefers to work with technologies which have passed the basic Research stage and have achieved a working proof-of-concept prototype.

It is also important to remember that a working, high-energy gain (Over-unity or Self-sustaining) verification of a prototype do

Research to Product Stages



Technology Risk Classification



Class 1: Technologies which have demonstrated or are close to demonstrating positive (high efficiency) prototype proof-of-concept results.

Class 2: Technologies which have demonstrated encouraging results which could lead to positive (high efficiency) results, and thereby warrant further resources to complete prototype in process.

Class 3: Technologies based on sound and often proven theoretical approaches which could lead to fundamental breakthroughs.



not necessarily ensure world-wide commercial success of your Technology. The following questions need to be addressed to determine your Technology's potential:

- ❑ Can the Technology be turned into a commercially viable product?
- ❑ Can the prototype be duplicated? Is the prototype stable or can it be made stable?
- ❑ Can the prototypes be scaled-up and/or scaled-down for different applications?
- ❑ Can the Technology be patented?

2.2 SELECTION CRITERIA

We both share the same objective of maximizing the commercial potential of your Technology. It is in ZPower's interest to achieve the highest possible revenue from license and royalty fees, which in turn will optimize your own objectives. However, our mutual success is predicated on your Technology meeting certain criteria, which include the following:

Revolutionary: The Technology should be a revolutionary breakthrough in the field of energy and propulsion, not an evolutionary one. A good example is the jump from copper wire to fiber optics in telecommunications, or from the vacuum tube to transistor in electronics.

Patent Coverage: ZPower is interested in innovations which have been or can be patented. An alternative to patents may be to keep a portion of the technology a trade secret, similar to the Coca-Cola recipe, but some form of intellectual property protection is important to ensure success. ZPower will review a Technology for patent submission including prior art from our archives of books, magazines, and patents on other energy technology designs.

Development Stage: ZPower prefers to commercialize inventions that are beyond the research stage with a working proof-of-concept prototype or possibly experiments which demonstrate a working prototype could be constructed.

Venture Capital: ZPower does not simply invest money in a Technology as a passive investor. We act as your active partner, providing complete commercialization services including technology development, patenting, and global licensing.

2.4 A CALL FOR INVENTIONS

ZPower encourages inventors, corporations, and universities with new technologies and innovations to submit inventions for commercialization. The attached flow-chart explains the steps of this process.

The first step is to contact us via phone, facsimile, or email. We can answer any questions about ZPower and our services. At this initial contact, we ask for a brief description of your technology that is general enough for us to understand what you have, yet not too specific to require a confidentiality

As Peter Drucker points out, a new technology cannot displace an old one unless it is proven at least 10 times better. Otherwise the billions of dollars worth of installed base and thousands of engineers committed to improving the old technology will suffice to block the new one.

GEORGE GILDER



agreement. Any test results you have achieved to date would be extremely helpful.

Depending on the status of your technology, we will either arrange a test of your prototype, or if no prototype exists we will ask for further technical information for our review and approval to fund a prototype.

We are flexible to different relationship with Inventors, as defined in Appendix 3, which include a License arrangement, Joint-Venture, or Buy-out. These options will be discussed and we will jointly determine which relationship best suits your needs.

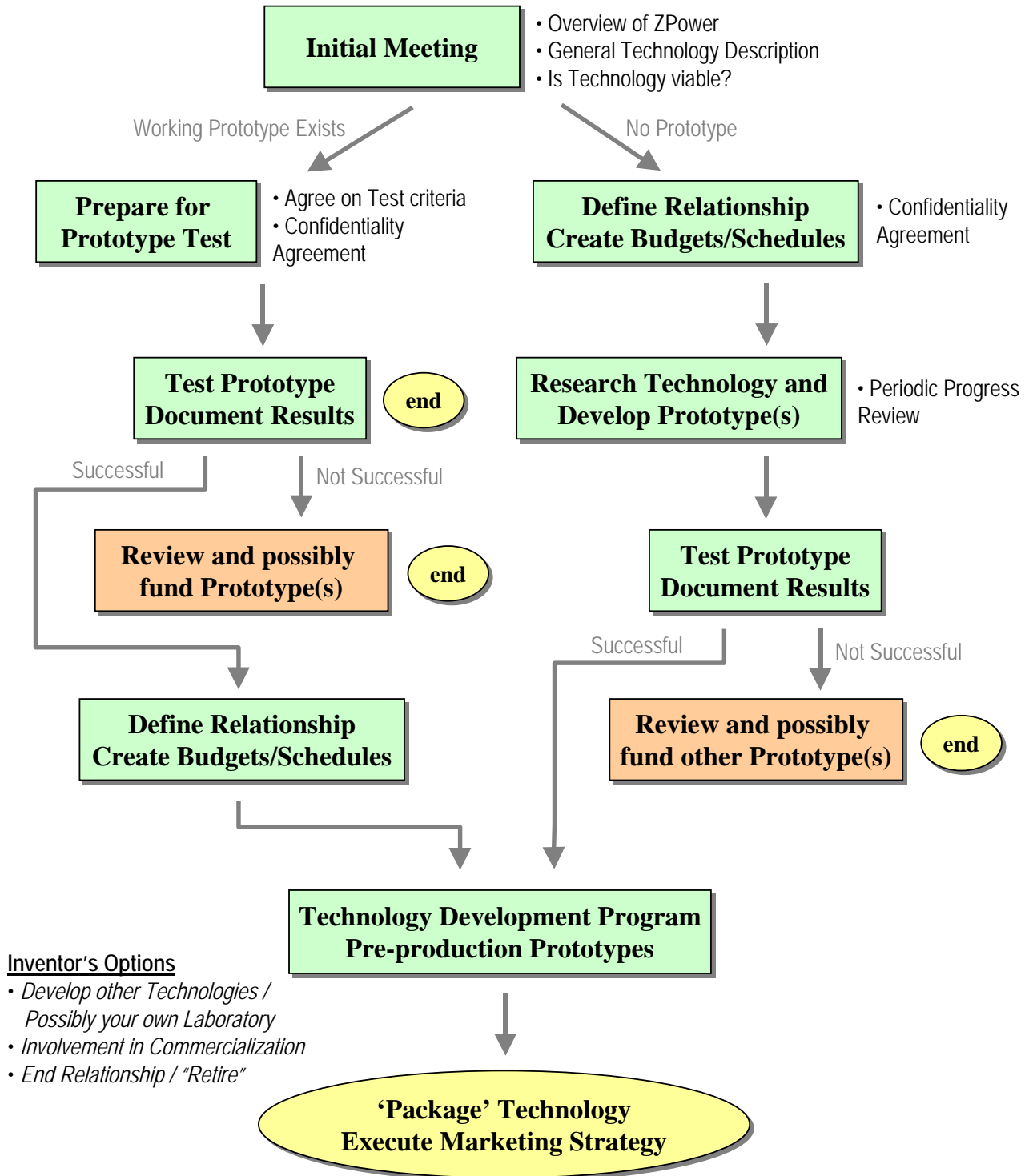
This relationship will be documented in an agreement between ZPower and the Inventor, which will include the following points:

- Defines the invention and the relationship between the inventor and ZPower, including financial responsibilities and commitments. We pay all agreed-upon expenses associated with the commercialization process, which may include those involved in patenting, technology development, prototype design and fabrication, marketing, and licensing.
- Outlines ZPower's revenue-sharing approach to compensation. Inventors are not charged fees of any kind for our services. Instead, we rely on the income derived from licensing the invention to pay the expenses and create the profits to be shared by the inventor and ZPower. In other words, like the inventor, we profit only when inventions are successfully commercialized.

We encourage you to contact ZPower to discuss the opportunities that await you and your Technology in the global marketplace.



Invention Steps

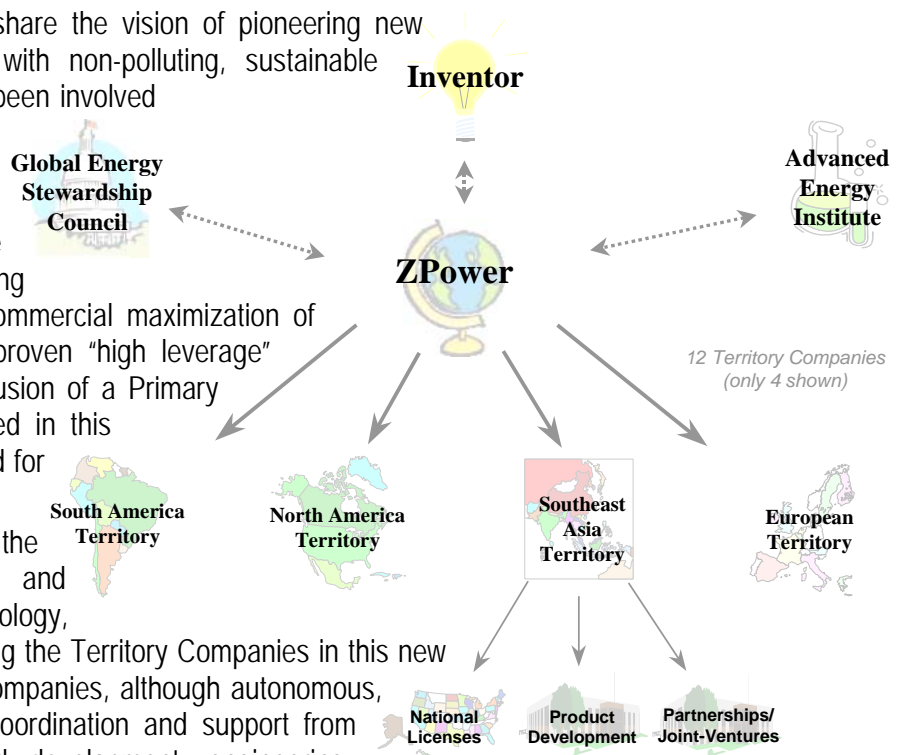


3.0 APPENDIX 1 - ZPOWER OVERVIEW

3.1 INTRODUCTION

The associates of ZPower share the vision of pioneering new solutions to provide the world with non-polluting, sustainable energy. They have invested and been involved in various ventures during the development stage of various technologies, and have now formed ZPower to act as the vehicle for the ongoing development, stewardship and commercial maximization of these technologies via a well proven "high leverage" method of licensing with the inclusion of a Primary Partner. Our strategy as detailed in this document can be specially tailored for the requirements of the Inventor.

ZPower will work closely with the Inventor in the development and commercial success of the Technology, and will be responsible for directing the Territory Companies in this new energy industry. The Territory Companies, although autonomous, will be able to draw upon the coordination and support from ZPower, including research and development, engineering, manufacturing, and marketing concepts.



3.2 ZPOWER'S RESPONSIBILITIES

ZPower's primary functions include:

- ◆ Group licensing and joint ventures
- ◆ Group technology transfers
- ◆ Co-ordinate tiered "private" floats, joint ventures and eventually public floats
- ◆ Group co-ordination of direction and vision
- ◆ Group co-ordination of engineering and research and development
- ◆ Group PR, conferences, symposiums, etc.
- ◆ Group co-ordination of governmental interface and involvement
- ◆ Initiation of Global Energy Stewardship Council (GESC)



- ◆ The lodgment, maintenance and protection of patents and other areas of intellectual property. We will provide legal and political protection of your Technology and patents.

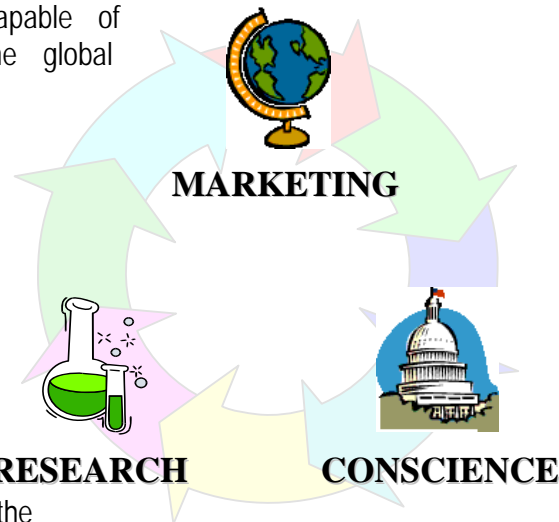
The company charter of ZPower includes the introduction of clean energy technologies into global society in an environmentally sound manner, the promotion of humanitarian ideals through action and the provision of funding for educational and charitable foundations.

3.3 SUMMARY OF OUR ABILITIES

The ZPower Company has a strong organization, capable of successfully commercializing your technology throughout the global marketplace, as follows:

Global Marketing Strategy

ZPower's approach is to provide financial and technical resources to prepare the technology for deployment. Our purpose is not to simply be an investor, but a full partner in providing strategic financial, technical and marketing resources necessary to insure the commercial success of the technology globally. Our structure is based on a program of global marketing via licensing and joint-ventures, which from the experience of many successful companies, has proved to be a very "high leverage" route involving thousands of entrepreneurs and corporations around the world in the profitable deployment of diverse technologies and products. Approximately twelve (12) Territory Companies will be established throughout the world. These Territory Companies will be principally responsible for the licensing and implementation of the technologies within their territories, together with the oversight of manufacturing, marketing, and engineering programs. The Territory Companies will not directly manufacture and market any products, but instead license, outsource, or authorize other companies and groups within their territory to perform these responsibilities.



Leadership Team

The associates of ZPower came together sharing a common vision, direction and a keen desire to provide sustainable energy alternatives, with energy forming the cornerstone for the material improvement of the quality of life of many, especially the two thirds of the world who presently live in poverty. The possibility of fundamentally and permanently reversing global warming and other environmental catastrophes is very close to their hearts. The three key associates of ZPower Corporation are Mike Fisher, Reed Huish and Michael Robison. Each of whom has achieved various levels of success, demonstrating a proven management team which has the skills needed to lead ZPower.



Government Development and Funding Programs

Programs for technology support and R&D funding have been discussed in several Asian countries. Significant time has been invested in developing relationships with key Asian countries at ministerial levels. We have established that substantial programs and benefits are available for our revolutionary technologies. Typical benefits and programs offered to us for the right technology include:

- ◆ Commercial funding in excess of \$1 billion
- ◆ From another source, funding up to fifty percent (50%) of R&D costs
- ◆ Hi-tech machine shop, personnel and engineering services
- ◆ Access to universities and leading academics in the field
- ◆ Tax free status of up to ten (10) years
- ◆ World wide patent and intellectual property protection
- ◆ Marketing and political contacts throughout Asia

Marketing Resources and Contacts

Each of the three associates of ZPower have developed numerous political, commercial, environmental and humanitarian contacts throughout the world. Once the proper organization is in place, use of these contacts to grow rapidly and successfully will be invaluable.

3.4 KEY ASSOCIATES

The associates of ZPower came together sharing a common vision, direction and a keen desire to provide sustainable energy alternatives, with energy forming the cornerstone for the material improvement of the quality of life of many, especially the two thirds of the world who presently live in poverty. The possibility of fundamentally and permanently reversing global warming and other environmental catastrophes is very close to their hearts.

The current associates are as follows (in alphabetical order):

Al Marchi: Al received his education at the Illinois Institute of Technology, including undergraduate work in electronic and mechanical engineering. He is a seasoned business executive whose early career has included positions as a corporate marketing executive with IBM, vice-president of marketing for Greyhound Corporation, and vice-president and founder of Government Services Division for Greyhound. Al financed and started his own plastics manufacturing company, growing to sales of over \$12M annually. He founded American Growth Fund, which provided over \$7.5M in funds to support selected private companies in orchestrating these companies through a full Initial Public Offering. Most recently he was CEO of a public company what was ultimately merged with a large offshore organization.

Reed Huish: Reed has been involved in the energy field for some years. His extensive research and study of the energy industry led him to start The



Energy Group, a successful company that provides unique and effective energy management and on-site power generation solutions for commercial and industrial customers in the U.S. and Canada. Reed has developed numerous contacts among new energy leaders and developers and has been responsible for the negotiation of several licenses and subsequent development of the ZPower energy technologies.

The associates of ZPower network with many associates in a variety of roles and professions around the world who are called upon to accomplish the diverse goals of the ZPower vision.



4.0 APPENDIX 2 - GLOBAL MARKETING STRATEGY

4.1 THE PRIMARY PARTNER

Our strategy is based on forming a joint venture with a Primary Partner, who would be a government or major multinational corporation. This will immediately provide enormous commercial and political strength. We feel it is extremely important to emphasize the leveraging effect of our primary partner route.

Our contacts have been developed over many years, and over the last four (4) years we have invested considerable time and money in identifying the best options for the primary partner, amongst other options. We have successfully located and primed several potential Primary Partners, selected for their commercial and political stature necessary to bring the appropriate technology to the market. They have no fossil fuel interests and have a vested interest in the successful commercialization of a new energy technology. However to obtain their involvement our preparations must be most thorough. It is important, therefore, that your Technology satisfies various criteria before we expose our contacts to this Technology. These criteria include not only the present status of your Technology, but also its future potential, the ability to protect the intellectual property and the corporate structure supporting it.

We all understand that the ramifications of this technology impact political, environmental and socio-economic boundaries within the world we live. We anticipate that there may be great resistance to this technology by politicians and energy-related business particularly in the developed world because of the economic impact it will have on vested interests. However, with the strength of a Primary Partner, established in an Asian country which strongly desires this technology to be successful (and have the fastest growing markets on their doorsteps), you will have the strength to overcome the inevitable obstacles.

We sometimes use an analogy of the "moving train" principle. When the technology is young it is equivalent to a train standing at the station. It is relatively cheap to get on the train at the early stages, but as momentum builds the value of the technology increases, and it becomes much more expensive to participate. Prior to the commitment of a Primary Partner, adverse vested interests may well be able to stop the train. As the technology progresses, major companies with vested interests will have a chance to get involved and participate in an industry which could make some of their prior ventures obsolete. As the train gathers speed as a result of insatiable markets in Asia, vested interests who wish to stop this technology will find it increasingly expensive, and probably impossible to do so. The energy demand in Asia is so great that by the year 2000, it is estimated that a major thermal power station will reach completion every three days. Once it is clear that the Technology is going ahead in Asia, potentially obstructive parties will have no choice but to get on the train.

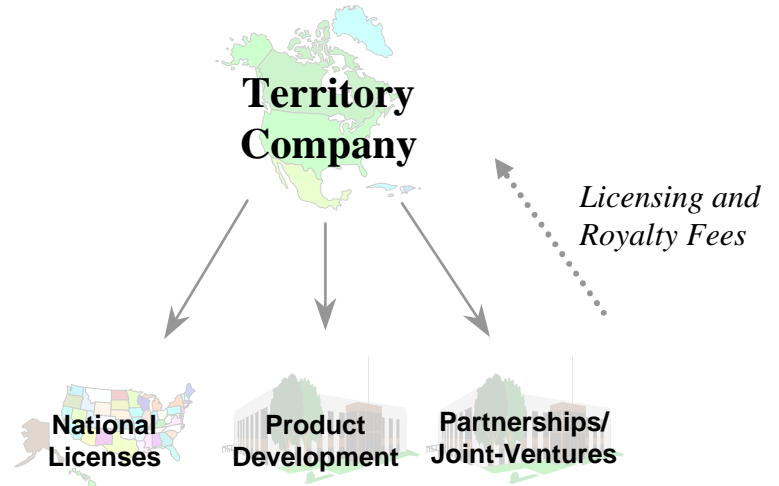


It should be stressed that this route is not a sell out to Asia, as this Primary Partner will hold stock in a company that will hold a license to a particular geographic territory.

4.2 TERRITORY COMPANIES

The development and commercialization of your Technology is a vast task. For this reason Territory Companies throughout the world will be established as semi-autonomous organizations which adapt themselves to local market, cultural and governmental conditions but share technology, systems and ideas with other Territory Companies within the group. ZPower will be responsible for group co-ordination.

This sharing of your Technology, under strict arrangement, will allow the R&D / engineering facilities of each territory to excel in the development of your Technology for key applications, without unnecessarily duplicating research already being performed by other Licensees. This will maximize the speed of development of your Technology for the multifarious world-wide applications. The legal requirement for cross licensing will be most exacting and will be based upon the experience of current global licensing companies.



- Application Engineering
- R&D Updates
- Know-How Consulting

- Right to sub-license
- Right to make, use, and/or sell

Territory Company Functions

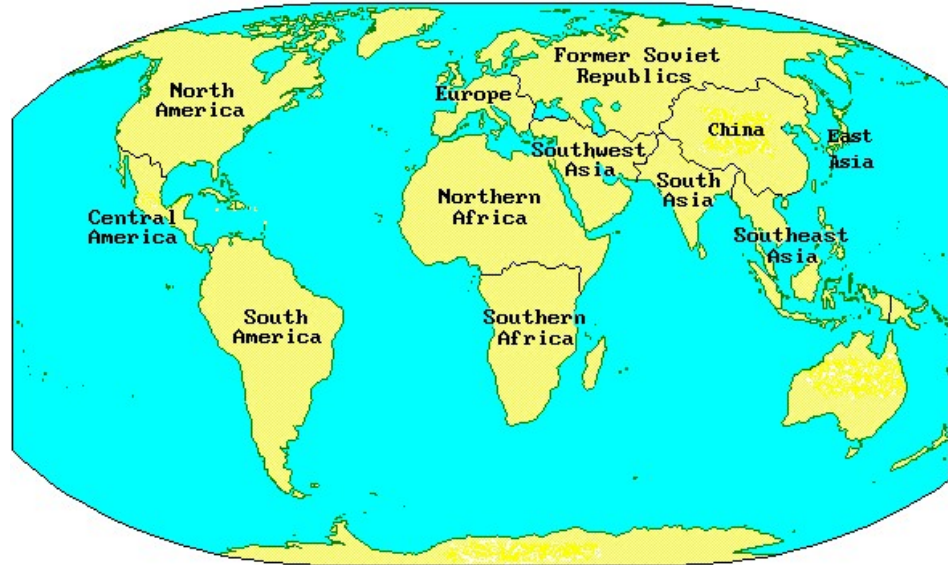
The Territory Company's responsibilities will include the following:

- ◆ Oversight of manufacturers, suppliers, and marketing groups within territory
- ◆ Establish sub-territories for specific applications or geographic areas
- ◆ Provide application engineering and technical support
- ◆ Establish National licensees, Partnerships, and Joint Ventures

Territory Geographic Definition

The initial strategy for the geographic delineation of the territories is as follows:





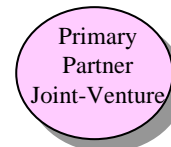
4.3 IMPLEMENTATION STRATEGY

The intention of this strategy is to introduce a global marketing program which allows development of your Technology within all regions and nations of the world and is inclusive of industries with vested interests in the energy industry. The commercial opportunities of this new form of energy are best developed by individuals who have the necessary regional knowledge, involvement, and expertise. This plan offers the opportunity to launch a range of products very rapidly to multiple markets globally.

The structure is founded on the need to build from strength, and thus initially will be based on a joint venture with a Primary Partner. This Primary Partner is likely to be a government or global organization which can provide support in terms of security, technical facilities for rapid research and development, credibility, influence, funding, infra-structure and other assistance. In the case of a government, special status for business development is sought.

Subsequent to the formation of this joint venture, licensing of approximately twelve (12) Territory Companies encompassing the world will commence. A key group of "Foundation Members" in each territory will be invited to subscribe to an

Stage 1



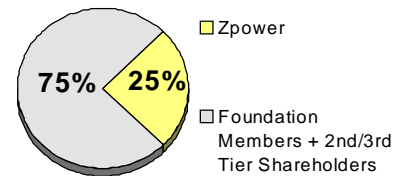
Major Territory Company

Stage 2



12 Territory Companies

Stage 3



Territory Company

Stage 4



initial share release. They will be selected according to their added value in terms of credibility, finance, humanitarian and environmental values and governmental access. These members can be individuals, groups, foundations, institutions or companies who will in effect be regional stewards for the global implementation of this revolutionary technology. Their principal role will be to form the initial Board of Directors in each Territory Company, together with ZPower Directors, and to decide upon the direction of the company within the countries of their territories.

4.4 SUMMARY

In summary, the global marketing structure as detailed herein, will allow for the most rapid implementation of multiple revolutionary technologies through the Territory Companies into nations and joint ventures with industries throughout the world.

This strategy, based on a combination of licensing and joint ventures, multiplies the resources to develop the Technology. A dynamic licensee, or joint venture partner, can immediately put whole teams of professionals to work developing, producing and marketing the Technology. Financial mountains to the Inventor may be petty case molehills to the licensee.

The licensees often perceive uses, and therefore markets, for the Technology which the Inventor may not. As the markets expand, so does the potential income.

The licensees typically pay initial fees and minimum royalty and / or performance levels can be structured.

Based on the experience of many successful companies, a licensing structure, such as this proposed here, has proven to be a very "high leverage" route which can involve thousands of entrepreneurs and companies around the world in the profitable deployment of the Technology, thereby creating a high-growth phenomena similar to the personal computer or Internet industries. The enormous web of licensing and sub-licensing agreements will allow for a flow of substantial revenues commensurate with the significance of the Technology.

The utility of a given technology increases as more people select that technology...Over time, as increasing returns tend to create positive feedback...the process of adopting technology will converge on a standard.

ECONOMIST W BRIAN
ARTHUR, ON THE BENEFITS
OF TECHNOLOGY LICENSING



5.0 APPENDIX 3 - OPTIONS FOR INVENTOR - ZPOWER PARTNERSHIP

ZPower is open to flexible working relationships based on the needs and criteria of the Inventor. The three primary options are listed below:

Mechanism	Description	Features & Characteristics
License	Licensing is an agreement to allow ZPower to use, manufacture, market, sale, and sub-license your Technology to various third parties.	<ul style="list-style-type: none"> • Inventor is typically compensated by monthly technology transfer fee, royalty fees, and possibly licensing fees • License agreement can stipulate minimum performance levels which must be met, such as minimum annual royalty payments • The Inventor's Technology can be licensed by Territory and Application
Joint-Venture	A jointly-owned company is formed between ZPower and the Inventor, to which the Inventor transfers the Technology rights and patents to this company. The company is responsible for carrying out manufacturing, marketing, and sub-licensing programs.	<ul style="list-style-type: none"> • Inventor owns a percentage of the joint-venture company, and is compensated typically by equity dividends from the profits of the joint-venture company • Inventor can be involved in the joint-venture business programs
Buy-out	ZPower purchases outright the technology rights from the Inventor.	<ul style="list-style-type: none"> • Inventor receives money for his technology up-front, which is usually much less than the income which will be cumulatively generated over time • Inventor does not usually receive any royalties or licensing fees



6.0 APPENDIX 4 - POTENTIAL MARKETS AND INCOME

6.1 SAMPLE APPLICATION - RESIDENTIAL POWER SYSTEMS

The value and application of the ZPower Global Marketing Structure can be illustrated through the example of a 15 kW Z-Power System which allows the typical homeowner to disconnect from the utility grid. This could be one of the first applications for Z-Power; as such a product appears to be inevitable.

The following is a possible scenario for this application:

Schedule (Month)	Marketing Strategy	Technology Strategy
1	<ul style="list-style-type: none"> ▪ Primary Partner Joint Venture established ▪ Formation of First Territory Company 	<ul style="list-style-type: none"> ▪ Engineering Prototype which produces 1 kW in a self-running condition is independently certified
2		<ul style="list-style-type: none"> ▪ Additional 1-10 kW Prototypes are constructed ▪ Engineering challenges are solved
3		
4		
5		
6	<ul style="list-style-type: none"> ▪ Formation of Territory Companies throughout the world commences 	<ul style="list-style-type: none"> ▪ 15 kW Residential Z-Power System is developed and tested
7		<ul style="list-style-type: none"> ▪ Technology Transfer to Territory Company ▪ Territory Company engineers Residential Z-Power System to suit Territory needs
8	<ul style="list-style-type: none"> ▪ Initial Territory Companies begin implementation of company plans 	
9	<ul style="list-style-type: none"> ▪ R&D facilities are established 	
10	<ul style="list-style-type: none"> ▪ National Licenses are established for Building Power Systems 	
11		
12		<ul style="list-style-type: none"> ▪ National Licenses outsource manufacture and distribution of Residential Z-Power System ▪ Marketing Partners (Electric Utility Companies) are selected
13	<ul style="list-style-type: none"> ▪ National Licenses outsource manufacture and distribution of Residential Z-Power System 	
14		
15	<ul style="list-style-type: none"> ▪ Marketing Partners (Electric Utility Companies) are selected 	
16		
17		<p style="text-align: center;">Marketing of Residential Z-Power Systems for one Territory Company commences; others to follow in subsequent months</p>
18		

The Product

ZPower is investigating several advanced energy technologies which could be the ideal building power source, i.e. solid-state, no fuel, and inexpensive to manufacture. Preliminary cost estimates of a 15 kW power unit are \$750 for manufacturing and \$2,500 for retail sale. Assuming a \$2,500 cost to the homeowner with a 10 year estimated life span delivering an average of 1,250



kWh per month, the resulting cost per kWh would be \$0.016, which compares favorably to traditional energy sources.

Based on a typical monthly home usage of 1,250 kWh, with average residential power costs of \$0.08 per kWh or a monthly bill of \$100, the payback for our power system will be about 2 years. Also, unique financing strategies could be offered for customers who are unable to internally finance or pay cash for their system.

The Z-Power System design is modular, so additional units can be connected in parallel to power needs from 15 kW to several megawatts if desired.

The Market

The market for residential power systems includes the following:

- Houses
- Condominiums
- Apartments
- Mobile Homes
- Cabins
- New construction

In the United States, \$350 billion is spent annually on home electric bills with a potential market of over 150 million customers.

Flow of Fees through Global Marketing Structure

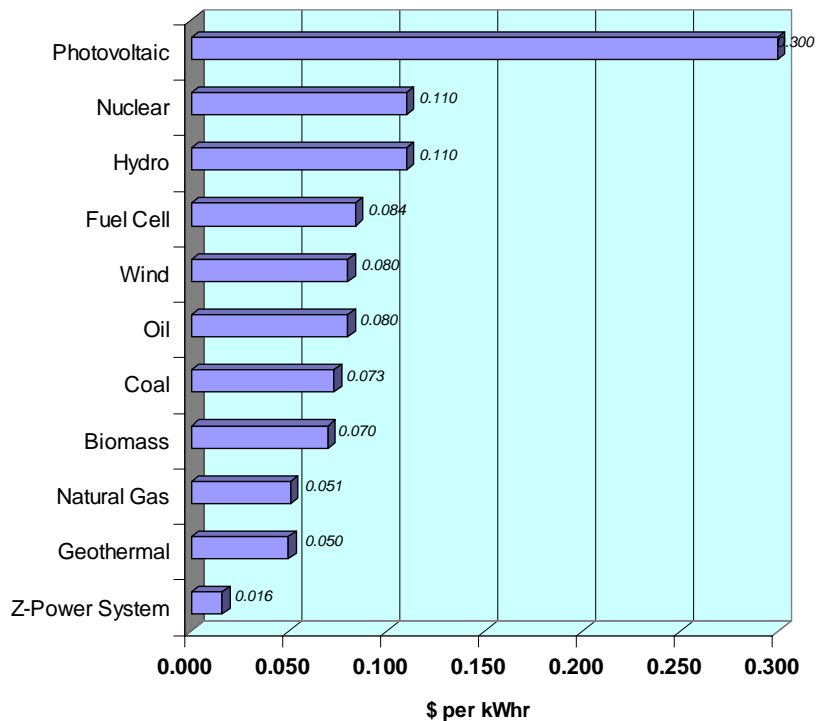
The two following scenarios show possible flows of royalties through a licensing structure. These are, of course, very simplistic, but do however demonstrate the potential for the inventor for a successful technology. Attached diagrams and spreadsheets:

Scenario #1 depicts 35 Electric Companies established to market, install and support the home power units in the United States only. Note that the U.S. is a particularly large market for residential electric needs.

Scenario #2 depicts 12 Territory Companies established around the world, with 3 Nations per Territory Company, and 25 Electric Companies per Nation, with each Electric Company selling 25,000 home power units per year.

Note these scenarios represent the marketing of only one application of the product. This same product could also be used for commercial and industrial power needs. Other major markets include transportation and consumer applications, the figures for which would be in addition to those shown in these scenarios.

Comparative Costs of Energy Sources



Flow of Fees through Global Marketing Structure Royalty Fees for Residential Power Systems

Assumptions:

Product - 15 kW Z-Power Converter	
Manufacturing/Distribution Cost per Unit:	\$ 750
Wholesale Cost per Unit:	\$ 1,250
Retail Cost per Unit:	\$ 2,500

Marketing Companies (Electric Utilities) are established to market, install, and service the Residential Power Converters at Retail Cost.

National License Companies are responsible for outsourcing of manufacturing and distribution. Products are then sold to the Marketing Companies at Wholesale Cost.

Territory Companies oversee product development, patents, and the National Licensees.

ZPower is responsible for global marketing, basic technology R&D, and world-wide technology licensing.



Marketing Companies per National Licensee:	35
Unit Sales:	75,000
Net Income:	\$ 46,875,000

National Licenses per Territory Company :	1
Net Income:	\$ 656,250,000

Number of Territory Companies :	1
Net Income:	\$ 98,437,500

Net Income :	\$ 4,921,875
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Income:	\$ 3,281,250
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Flow of Fees through Global Marketing Structure Royalty Fees for Residential Power Systems

Assumptions:

Product - 15 kW Z-Power Converter	
Manufacturing/Distribution Cost per Unit:	\$ 750
Wholesale Cost per Unit:	\$ 1,250
Retail Cost per Unit:	\$ 2,500

Marketing Companies (Electric Utilities) are established to market, install, and service the Residential Power Converters at Retail Cost.

National License Companies are responsible for outsourcing of manufacturing and distribution. Products are then sold to the Marketing Companies at Wholesale Cost.

Territory Companies oversee product development, patents, and the National Licensees.

ZPower is responsible for global marketing, basic technology R&D, and world-wide technology licensing.



Marketing Companies per National Licensee:	25
Unit Sales:	75,000
Net Income:	\$ 46,875,000

National Licenses per Territory Company:	3
Net Income:	\$ 468,750,000

Number of Territory Companies :	12
Net Income:	\$ 210,937,500

Net Income :	\$ 126,562,500
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Income:	\$ 84,375,000
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7.0 APPENDIX 5 - EXAMPLE OF A SUCCESSFUL LICENSING STRATEGY

COMMERCIALIZING THE DOLBY SYSTEM

CASE HISTORY OF SUCCESSFUL LICENSING OF THE DOLBY NOISE REDUCTION SYSTEM

ROYALTY TERMS DESCRIBED

IAN HARDCASTLE

PRESENTED AT LES U.S.A./CANADA ANNUAL MEETING, QUEBEC CITY, CANADA, SEPTEMBER 1983

This paper will attempt to document some of the events of the early days of licensing the Dolby B-type noise reduction system that culminated in the almost universal incorporation of the noise reduction system itself in consumer cassette recorders and similar audio products, and the marking of these products with Dolby trademarks.

There have been many cases in which inventors of truly novel ideas have never been fully rewarded in terms of fame or fortune for their innovations. This can be because the technology required to realize the invention practically has yet to be invented, or because the invention is irrelevant to any market that exists during the lifetime of the patent. There have been other cases in which the inventors of relevant and timely inventions have failed to exploit their inventions and have left it to others to make money from their ideas. Ray Dolby's inventions are practical, have been made at a time at which there is a market demand for them, and he has had the determination and courage to fight off those who sought to deny him his due rewards.

Ray Milton Dolby was born in Portland, Oregon, in 1933. He grew up in the San Francisco Bay Area. He began working for Ampex Corporation, one of the earliest manufacturers of magnetic tape recorders in the US, when he was 16. He later was responsible for developing a major part of the electronics of the world's first practical video tape recorder.

After graduating from Stanford University in 1957, he attended Cambridge University in England, where he worked on long-wavelength X-rays and received



a PhD in 1961. In 1963, he took up a two year appointment as a United Nations advisor in India.

Amateur

Dolby had for many years been a keen amateur recording engineer and was aware of the degradation of recording quality caused by the noise inherent in the process of recording audio (or video) signals on magnetic tape. It was while he was in India that he began to think seriously of ways to reduce this noise without causing other degradations in the quality of the recording. This thought process resulted in the ideas that formed the basis of the Dolby A-type, B-type and C-type noise reduction systems, various Dolby video noise reduction systems that have never been exploited commercially, and a wealth of alternative and innovative ways of realizing these systems practically.

Returning to England in 1965, Dolby set up his own laboratory in London to investigate and explore his ideas relating to noise reduction and other topics. The company was called "Dolby Laboratories" and was incorporated in 1968. Although the company had its center of gravity in England for its first 10 years, it has always been an American company. Until the center of gravity moved to San Francisco in 1976, its corporate headquarters were in New York.

In 1965, a working unit of the Dolby A-type (A for audio) noise reduction system was produced. This system was designed to deal with a wide variety of audio noise reduction applications, especially with the noise problems of the tape recorders used in recording studios to record the master tapes from which phonograph records are cut.

Up to 1966, several noise reduction systems for this purpose had been demonstrated to the recording industry. None was capable of reducing noise without degrading the recording in some way. Dolby was therefore faced with considerable skepticism when he tried to sell his new invention to the recording industry, as his potential customers had no reason to believe that his system would work any better than the others.

There was a need for noise reduction in the recording industry. People were beginning to realize that what was generally thought of as "surface noise" on vinyl LPs did not in fact come from the surface of the record itself but was the noise of the master tape from which the record was cut. Reducing the noise of the master tape would therefore reduce the "surface noise" of a record made from the tape.

Also people had started to record using multitrack tape recorders, using at first 4, then 8, 16 and 24-tracks. When a multitrack tape is mixed down, the noise level on the resulting two-track master can be considerably higher than if the recording had been made directly onto two tracks.

Trial

In January 1966, Decca records in England concluded that Dolby A-type noise reduction did what Dolby said it did, and ordered nine Dolby A 301 A-type noise reduction units, the first of which was used in Vienna in May 1966 to record some Mozart piano concertos played by Vladimir Ashkenazy. In November that



year, Decca released the first record that had been mastered using Dolby A-type noise reduction, *Mahler's Second Symphony* conducted by Sir Georg Solti.

Word spread that Dolby's noise reduction system actually worked, and the record industry gradually started to use it, first of all only on classical recordings and then, as multitrack recording spread, on more and more different types of recording. Early records mastered using Dolby A-type were often identified as such, and the improvements in sound quality brought about by the use of A-type noise reduction was commented on favorably in reviews of these records in newspapers and magazines throughout the world. The record-buying public became aware of the name "Dolby" in connection with better-sounding records.

Dolby was urged to develop a noise reduction system for consumer-quality tape recorders. A-type noise reduction gave spectacular results when applied to consumer recorders, but was far too expensive to be used for this purpose. However, since the predominant noise of a consumer tape recorder is high-frequency noise, a significant noise reduction effect can be attained by reducing this noise only, and the sliding-band noise reduction system, another of Dolby's inventions, does this very effectively with a much simpler circuit than that required in Dolby A-type to give noise reduction across the complete frequency spectrum.

Practical development of what was initially called "The Simplified Dolby System," and some time later became called Dolby B-type noise reduction, began in April 1967. The K.L.H. Research and Development Corporation in Cambridge, Massachusetts, which was developing a consumer-quality tape recorder and wanted to give it a major performance advantage by using noise reduction, successfully persuaded Dolby to begin this project. An agreement in principle to license K.L.H. to build B-type circuits into its tape recorders was signed in May 1967.

License Agreement

Concurrent with K.L.H.'s work on the tape recorder itself and Dolby's work on the practical implementation of his "simplified system," a license agreement was developed. The initial draft was prepared by K.L.H. attorney William Humbert of Fish, Richardson and Nerve of Boston. Dolby handled most of the negotiations with K.L.H. and, later on, with its then parent company, the Singer Corporation. He also wrote most of the resulting wording changes himself, which probably accounts for the practical nature of the agreement that resulted; however, Dolby received considerable help from his attorney, Robert F. O'Connell, of the then Cooch & O'Connell of Boston, Massachusetts.

At the time the agreement was negotiated, the word "Dolby" was becoming known by the public but it had not been widely registered as a trademark. Nevertheless, rights to use the Dolby name in addition to the "S/N Stretcher" trademark ("S/N" means "Signal to Noise (Ratio)"), which Dolby used on all A 301 noise reduction units, were included in the license, together with the necessary quality control requirements.

A middle five-figures initial payment and a royalty of 4% of the ex-factory price of each tape recorder sold were agreed upon. Dolby insisted on a fairly



substantial initial payment to give him at least some return for developing the Simplified System in the event that K.L.H. decided to stop making tape recorders soon after it started to make them.

A license agreement, giving K.L.H. a right to make tape recorders incorporating Dolby B-type noise reduction, exclusive until November 1969 (later extended to March 1970) and nonexclusive thereafter, was finally signed in April 1968. In addition to the license agreement there was a consultancy agreement covering the provision of technical support for the licensee.

The K.L.H. Model 40 tape recorder was launched in June 1968, to enthusiastic critical acclaim, which reflected well on the product itself and further enhanced the reputation of Dolby noise reduction and public awareness of it. Serious production did not begin until almost the end of the year. The product did not sell well mainly because of production difficulties and acute reliability problems. Dolby's insistence on a large initial payment turned out to be wise precaution: K.L.H. made less than 2,000 units of the tape recorder for which the "Simplified Dolby System" was designed.

Second License

Dolby's second license, signed in February 1970, was for Advent Corporation of Cambridge, Massachusetts, to sell what were called at the time "black boxes." A black box, or add-on unit, is a box containing two or more Dolby B-type noise reduction circuits and the necessary interface circuits to enable B-type noise reduction to be applied to almost any existing tape recorder or cassette recorder. Such products had been proposed in 1967, but Dolby resisted their introduction until his reputation was more firmly established, since the results obtained from an add-on unit depend greatly on the performance quality of the tape recorder with which it is used. However, add-on unit enjoyed considerable popularity in the early 1970s until there was such a wide variety of products with built-in Dolby B-type noise reduction available that there was no longer any need for the consumer to bother using an old tape recorder with an add-on noise reduction unit.

The basic operational inconvenience of the open-reel recorder condemned it to being a relatively small-volume item in the consumer audio market. However, the 8-track cartridge and, more significantly, the Compact Cassette gave the consumer the advantages of magnetic tape recording without the inconvenience. Soon after Philips introduced the Compact Cassette as a dictating machine in 1965, consumer cassette recorders intended for the recording and playback of music and speech were being produced all over the world in large volumes. Most early cassette recorders had fidelity approximating that of A.M. radio, but quality improvements took place relatively quickly, beginning with the introduction of stereo recorders in 1967, and followed by mass duplicated prerecorded stereo cassettes, which could also be played on monaural machines.

Experiment

Dolby began experimenting in 1968 with B-type noise reduction on both 8-track and the Compact Cassette, although after a relatively short period of time



he concentrated exclusively on the latter. By this time, the industry had developed improved cassette mechanisms, heads, tapes and shells, such that with some minor improvements to the electronics, performance that was high fidelity in all aspects but that of noise could be obtained.

Several companies were working on noise reduction systems; many concentrated on playback-only systems, (some of which actually got into production) which tended to cause more problems than they solved. Others, notably J.V.C. and Sony, were developing record/playback systems.

Dolby caused considerable excitement in October 1969 when he demonstrated a compact cassette recorder with external Dolby B-type noise reduction at the Audio Engineering Society Convention in New York and to several U.S. high-fidelity manufacturers. He also traveled to Japan that year and discussed licensing with several companies there.

The first company licensed in Japan was Nakamichi Research, Inc., with whom licensing discussions were started in November 1969. Nakamichi specialized at that time almost exclusively in O.E.M. business and was ideally placed to exploit the demand for high-fidelity cassette recorders from the U.S. and from Europe. It was already making advanced cassette recorders and a product with Dolby B-type noise reduction, an open-reel recorder for K.L.H., the Model 41.

Dolby took advantage of the hiatus caused by K.L.H.'s period of exclusivity to think about his licensing program and to consult with licensing experts around the world, getting their opinions as to the best way to develop the basic form of the K.L.H. license into a worldwide general-use license. This process was completed in time for a new agreement to be developed for licensing Advent and Nakamichi.

In the second generation agreement, the initial payment was reduced to \$5,000, but separate agreements were required for tape recorders, amplifiers and receivers, and add-on noise reduction units. The royalty rate was 2% for tape recorders, amplifiers and receivers, and 4% for add-on units. The agreements, which also included rights to the trademarks "Dolby" and the "Double-D" symbol (first used by Dolby Laboratories in 1969), were still in the form of a license agreement and a consultancy agreement.

Acclaim

Nakamichi's license agreement became effective in July 1970. In the summer of 1970, Nakamichi-made high-fidelity cassette recorders with Dolby B-type noise reduction were introduced on the U.S. market by Advent, Fisher and Harman Kardon. They were again critically acclaimed. These days we take the performance of cassette recorders for granted. It sometimes is hard to imagine the impact that the true high-fidelity performance of these products made on those that were hearing them for the first time.

In the rest of 1970, four new licensees signed the second-generation license agreement. Apart from Hitachi, these were all audio specialist companies. Also in 1970, Dolby employed a Japanese company, Continental Far East, Inc., to act as Tokyo liaison office to help deal with its licensees in Japan



and the considerable number of companies that expressed interest in becoming licensees, a service that C.F.E. still performs.

In 1970, Dolby discussed the idea of recording prerecorded cassettes with the Dolby B-type characteristic (so that they would have a low noise when played on players equipped with Dolby B-type noise reduction with several record companies. Technically, it was easy enough to do, Dolby designed and started to manufacture a professional-standard Dolby B-type encoder for this purpose. The record companies did not want to issue cassettes in both normal and Dolby encoded forms, so before they would issue Dolby encoded cassettes, they had to assure themselves that the encoded cassette would sound acceptable when played on a player without Dolby noise reduction.

Listening tests performed by several record companies, notably Decca in the U.K. and Ampex Stereo Tapes in the U.S., showed that the encoded tapes were even preferred over non-encoded tapes when played on players without noise reduction. Later that year the companies issued their first batch of B-type encoded tapes at a time when less than 40,000 cassette players capable of decoding them existed in the world.

Dolby developed a trademark and quality-control license for record companies to use the Dolby trademarks on prerecorded tapes. Initially a royalty was contemplated but it was thought that these tapes would help establish Dolby B as the standard consumer tape noise reduction system and would also promote sales of Dolby B-equipped cassette recorders. The license was therefore made royalty-free.

The summer 1971 Consumer Electronics Show, which was the first summer C.E.S. at which genuine mass production cassette recorders with Dolby noise reduction were shown by licensees and their O.E.M. customers, saw three more events that helped establish Dolby B-type's acceptance as the main consumer tape noise reduction system. The first event was a demonstration to the press and licensees by Dolby Laboratories in cooperation with radio station WFMT, Chicago, of the use of Dolby B-type noise reduction on FM radio.

Although Dolby FM is no longer significant, it played an important role in furthering the acceptance of Dolby B-type noise reduction in the early 1970s. In those days, tape products were regarded by many in the audio industry as being of secondary importance since their sales were small compared with those of turntables, receivers and loudspeakers.

While Dolby B was tied to tape, it was glamorous and well respected but it did not generate real excitement as far as potential sales volume was concerned. With the FM application, this reservation was dispelled, since there was the prospect of being able to sell Dolby noise reduction in every FM tuner and receiver.

The second event at the 1971 Summer C.E.S. was the joint announcement by Dolby Laboratories and Signetics Corporation that they had agreed to cooperate in the development of a special integrated circuit for use in the Dolby B-type circuit. As there is no point in designing special integrated circuits unless there is the prospect of selling them in the hundreds of thousands, this



announcement further directed people's attention to the mass market potential of Dolby noise reduction.

An integrated circuit would simplify the circuitry required to realize the Dolby B-type circuit, widening the range of products in which it could be used and thus considerably increasing the size of the potential market. The prospective availability of an integrated circuit stimulated interest from many desirable potential licensees especially in Europe, where the complexity of the discrete Dolby B-type circuit was considered by several companies to be inappropriate for consumer products.

The third event of the C.E.S. was the announcement by Dolby Laboratories of simplified licensing arrangements and a new, lower-cost royalty structure for its license. There was now to be a single license agreement granting patent, trademark and know-how rights and covering all consumer audio product categories, so multiple initial payments were no longer called for. Instead of a fixed percentage of the product selling price, always a tricky thing to define, the new royalty structure was based on the number of Dolby B-type circuits sold per calendar quarter, the first 10,000 being at 50 cents each, the next 40,000 being at 25 cents, and all above 50,000 being at 10 cents each. These basic royalty rates are tied to the U.S. Consumer Cost of Living Index, which this year (1983) multiplies these rates by 2.406. The new rates were intended to indicate to large potential licensees that were still sitting on the fence, the potential mass-market application of Dolby noise reduction.

In the middle of 1971, Dolby Laboratories set up a formal quality control program for its licensees' products. Prior to this, quality control had been performed on an ad hoc basis, since there was a basic consensus of understanding between Dolby and its licensees as to what were appropriate performance parameters for licensed products. The need for more formal quality standards and a process to enforce them became obvious as more companies catering for the middle and even the low end of the market were licensed. The quality control program has been successful in preventing products with substandard performance from reaching the market, thereby maintaining the quality image of products marked with the Dolby trademarks.

The events of 1971 turned out to be effective in communicating Dolby's message to the consumer audio equipment manufacturers and tape duplicators. In 1971, nine companies signed license agreements, including the company that has now the largest production rate of products with Dolby noise reduction and the company that often has the second largest production rate. In 1972, the number of licenses signed was 12 and in 1973 the number was 13. The companies that currently have the 10 highest production rates had all signed by the end of 1973.

Throughout his negotiations with the various consumer electronics companies, Dolby stuck to his objective of getting them to adopt his standard noise reduction system under his standard licensing terms. The companies saw the tremendous growth that was beginning to occur in the newly established market for high-fidelity cassette recorders with noise reduction.



Dolby was able to convince them that (a) standardization on the Dolby B-type noise reduction system would further stimulate the record industry to produce B-type encoded prerecorded tapes; (b) that the wide availability of cassette recorders and prerecorded tapes all with the same Dolby B-type noise reduction would establish confidence in the mind of the prospective purchaser of a cassette recorder with B-type noise reduction that B-type noise reduction encoded tapes, either commercially prerecorded or recorded on friends' machines, would continue to be available for a long time to come; and (c) once consumer confidence in a new product category is established, the long-term growth of the market can be assured. As a result of this, only one other complementary noise reduction system appeared on the consumer market up to 1976, and even this, JVC's A.N.R.S., had to be claimed compatible with Dolby B in order to sell.

It is interesting to contrast the growth and longevity of the market for high-fidelity cassette recorders with that for four-channel stereo, which started about the same time. Unlike the cassette recorder market, the four-channel stereo market suffered from several different and incompatible systems, the proponents of which spent more effort bad-mouthing each other than selling the concept of four-channel stereo to the consumer. The market for four-channel stereo died out completely before the end of the 1970s.

By the end of 1974, Dolby had 47 licensees including almost all the major manufacturers of consumer hi-fi audio equipment, and Dolby thought that there would be little need to negotiate many more new license agreements. This proved incorrect, since many new consumer applications of Dolby noise reduction opened up.

It is now used in such diverse applications as car stereos, music centers, portable radio cassettes, VHS video recorders and headphone stereos, and in each new field of application there were new specialist companies that needed to be licensed. New centers of production outside of Japan and Europe also opened up, all requiring individual attention as far as licensing is concerned. Dolby Laboratories now has about 160 licensees, of which about 100 are actually active. Dolby noise reduction circuits are currently being produced at an annual rate of about 40 million, grossing about \$9 million per year for the company (about half the company's income); about 160 million are manufactured in about 35 countries. The various Dolby trademarks are registered in over 85 countries.

New System

In 1980, Dolby Laboratories introduced a new noise reduction system for the consumer market called Dolby C-type. It has also introduced improved ways to record on cassettes, Dolby HX in 1979, and Dolby HX Professional in 1982. This last innovation marks Dolby's first licensing venture into the professional audio market. Dolby HX Professional can not only be used in home cassette recorders, it can also be used to improve the recording quality of high-speed mass duplicated cassettes and the duplication mastering recorders.



The license agreement currently used for all applications is little changed from the third-generation agreement of 1971. New technologies are added to existing license agreements by using side letters. At the beginning of 1982, the royalty structure was changed to add royalty brackets that reflect the considerable increase in licensees' production volumes over what was envisaged in 1971.

The 10-cent bracket now only extends up to 250,000 processors, and an 8.5-cent bracket (250,001 to 1,000,000), and a 7.5-cent bracket (1,000,000 up) have been added. Also, playback-only processors such as are found in headphone portables and car stereos are counted as 0.75 of a processor for the purpose of counting royalties.

Dolby noise reduction systems now account for about 95% of the sales of complementary noise reduction systems in consumer products. Dolby Laboratories, Inc. is still a private company owned by Ray Dolby. Dolby has recently vacated the presidency of the company and is now its chairman. This new position will give him more time to devote to what he really enjoys doing -- inventing.

DOLBY LICENSING STATISTICS

Film and Cinema

- 10,020 Dolby Digital equipped screens
- 940 Dolby Digital films released or announced
- 41,000 Dolby equipped screens
- 7,250 Dolby films
- 18,550 Dolby SR equipped screens
- 2,700 Dolby SR films
- Dolby films mixed in 28 countries
- 110 Distributors of cinema products for 50 countries
- 225 Laser Discs with Dolby Digital soundtracks released or announced

Professional Products

- 118,500 tracks of SR
- 198,000 tracks of A-type
- 80 Distributors of professional products in 50 countries

Licensing

- 602,000,000 licensed products sold
- 25,700,000 surround decoders sold
- 177,000 Dolby Digital (AC-3) decoders sold
- 2,270,000 AC-2 decoders sold
- 961,000 AC-1 decoders sold
- 317 patents in 33 countries
- 595 trademarks registered in 92 countries
- 802 active software licensees
- 166 active hardware licensees
- 324 hardware licensees in 44 countries



8.0 APPENDIX 6 - INTELLECTUAL PROPERTY MECHANISMS

Created by the Federal Lab Consortium (FLC), from "The Hunt for Technology"

Method	Description	Term	Subject
Non-disclosure agreement	Binds a party receiving proprietary information from disclosing that information	Usually 3-5 years	Any confidential information disclosed during the interaction that is not public or received through other legitimate means
Patent	Serves as a contract between the government and an inventor whereby, in exchange for the inventor's complete disclosure of the invention, the government gives the inventor the right to exclude others from making, using, or selling the invention	Up to 20 years	Process, machine, manufacture, composition of matter, original design, certain agricultural plants
Statutory Invention Registration (SIR)	Allows federal agencies to secure protection of the government's rights in inventions without the normally required patent examination process -- serves as a publication	N/A	Process, machine, manufacture, composition of matter, original design, certain agricultural plants
Copyright	Provides exclusive right granted by the U.S. government to the authors, composers, artists, or their assignees to copy, exhibit, distribute, or perform their works	Life of individual plus 50 years	Products of the mind which are produced in tangible expressions, writings, paintings, movies, music, sculpture, computer software
Trade Secret	Provides the right to withhold any commercial formula, device, pattern, process, or information that affords a business person an advantage over others who do not know it	As long as secrecy is maintained	Any commercial formula, device, pattern, process, or information that is secret, substantial, or valuable
Trademark, Trade Name, Service Mark	Establishes a unique expression to identify goods or services for commercial purposes	As long as use is continuous	Word, name, symbol, device, numeral, picture, or any combination of them



9.0 APPENDIX 7 - EMPOWERMENT - THE LIFE FORCE OF THE ENERGY REVOLUTION

BY MIKE FISHER, ADVISER OF ZPOWER CORPORATION

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Introduction

The last time I checked the appliance department at my local Wal-Mart, I couldn't find a free energy generator, which is quite confusing since nearly every week for the past few years I heard rumors of a revolutionary energy technology which is going to change the world. But alas, weeks, then months, and even years go by...and nothing. Why? Ever since Nikola Tesla's time have we heard rumors of machines which could generate unlimited amounts of power for our cars or homes. But today, not a single product is available.

The purpose of this article is to assist those working or interested in the embryonic New Energy field so that the industry can not only flourish, but essentially begin. This article has been prompted by my experience in this industry, as I have seen many people in this field battered by unfulfilled dreams, dashed hopes, often impoverished, having devoted all they have to their research, and having received little recognition let alone financial reward for their efforts. I sense many are dis-empowered, not knowing how to move forward, seemingly with the whole world against them, whether it be the bank manager, the family, perceptions of "greedy" big business, the government, academia, the military and so forth.

I wish to address empowerment not only of ourselves individually, but also our organizations, our businesses, our communications with each other, and dare I say it, these elusive energy inventions themselves. Where are the machines that are going to power the next century and beyond without fuel or pollution? You might even have developed one of them, but how do you ensure the success of your technology?

I have been involved with "new energy" since 1993, a relative newcomer compared to many. However, prior to that I was working with other renewable energy technologies and strategies for implementation, and was dealing on an international level reviewing national and continental strategies for the future of energy well into the next century. The question that guided me was: "Given that much of our current methods of production and use of energy are clearly unsustainable, what has to happen if we are going to make the transition to a sustainable future?" Sustainability can be expressed in terms of whether our actions today (and those of our companies, communities, or nation) in any way



deny or adversely affect the ability of future generations here or abroad to enjoy the quality of life which we all should have access to.

Sometimes I have felt that humanity has no concern for a sustainable future and is like the breed of a flightless bird, the lemming, determined to march en masse over the cliff edge to destruction. However, the collective is an aggregate of the individual consciousness. Are we just victims of a herd instinct or do we have the ability to determine our own destiny? We each have been endowed with unique talents, but the will to reach our full potential is often crushed by fear or the lack of hope. Each of us can choose and determine our own future by the decisions we make today, and those individual decisions determine whether humanity will be another race of lemmings.

And what about hope? Before I had even heard of free energy or space energy, I discovered that the entire world's energy needs could be met by photovoltaic (PV) cells covering only 4% of the world's deserts, and Sanyo, the visionary Japanese company, have set their sights on manufacturing in large enough quantities and at a competitive price to do just that by 2030. There is enough energy in the River Inga in Zaire to power half of Africa. There is enough wind energy potential on the west coast of Ireland alone to power all of Europe. There is enough wind energy potential in the Midwest of America to meet a substantial part of the US power demand. Recent advances in variable speed generators have made wind energy competitive with nuclear energy and even beating coal powered energy in some places. Technological breakthroughs in photovoltaics could result in PV's being available at one tenth of their current price within 5 to 10 years and competitive with large scale thermal power plants. That's not to mention fuel cells, geothermal, tidal, solar thermal or even "free energy". Yes, there are solutions, but none of the traditional "renewables" offer mobile, on demand power day or night except "free energy". These solutions are still on the fringe as most of the new production capacity is still polluting. To change that is the challenge to all of us in the new energy field.

Our beliefs shape our experience of life

It has often been said that our beliefs determine our destiny and the quality of our lives; what's more in this increasingly complex world, it is possible to find plenty of evidence to support or invalidate a belief either way. Each of us needs to ask ourselves which beliefs stand up to scrutiny, will empower us and help us to lead productive, worthwhile and ultimately happy lives. It is our choice.

Below are a few "beliefs" that are prevalent in the new energy industry. They are listed as a challenge. They may or may not be true for us, and if so do they serve us? When we read them and the following notes, what feelings do they evoke in us? If we search deep inside, we might feel negative emotions of anger, fear, sadness, resentment, despair or irrelevance, and there we may also find the key to our own empowerment.



Belief No 1. “There is not enough to go round. You have to fight to survive in this dog-eat-dog world. Life is such a struggle.”

Mahatma Gandhi once said, “There is enough for everyone’s needs, but enough for no-one’s greed.” Does each of us have air to breathe, clothes to keep us warm, food to eat, water to drink, shelter and a friend in the world to comfort us? Do we know the difference between what we need and what we want? We might be surprised to find we need much less than we think. Sure there are a lot of greedy people in the world and it’s easy to blame them for our situation. Does blaming them serve us, and how much is our own greed the source of scarcity in our lives and therefore our unhappiness?

Belief No 2. “There is a plot to discredit my ideas. The academic and professional establishment is against me.”

We have all heard stories of conspiracy and also of professors and professional engineers refusing to acknowledge an over-unity result. I have not personally tested the CETI’s Patterson Power Cell or Paulo Correa’s invention, so I cannot comment on them, but my group has investigated or tested possibly upwards of one hundred and sixty different technologies and I have found not even one that I can honestly say is a viable over-unity power source. Not one! I know there are many great stories burning up the telephone lines, but ask yourself: how many of you have actually seen, first hand, a device producing power without any source of input energy?

Having said that, I have invested my own money in new energy technologies and am in this business to commercially develop working technologies successfully. Nothing would please me more than to find just one with some commercial potential. I am sure many of you share my deep conviction that “free energy” is not only possible, but inevitable.

There is no better way to silence the critics than by irrefutable test results and repeatable experimental technique. Maybe even as you are reading this article, that ‘smoking gun’, a self-running unit generating significant power is undergoing testing in some part of the world. I cannot over-emphasize how important thorough, independent test results are to the successful marketing of your innovation.

We need to communicate and build strategic alliances with professional engineers or scientists that we can trust. Explain the technology (under a confidentiality agreement, of course); help them understand and become our advocates. A good professor could be worth his weight in gold, as they can offer the credibility we all need in a field many feel is pseudo-science. With a working prototype, the inventor needs to find the right backer for help with the components of the commercial “package” in order to raise the necessary capital for full product development. Proper packaging of a technology is essential for success.

Most human failures in the management of businesses occur because people either do not know what to do, or they do not know how to do it. We need to know our strengths and weaknesses, and find the right team to support



us in areas where our expertise is lacking, both in terms of what to do and how to do it. This may apply to testing, business planning, corporate structures, patent protection, etc. We do not have to do it all on our own, and we will be much more successful with a good team. It is my belief that the success of this field will require us to work together with others, since none of us has all the skills we need to do it by ourselves.

Belief No 3. “The vested interests, oil companies, utilities, and car manufacturers only want to steal my idea and suppress it along with all other free energy technologies.”

There is no doubt that some vested interests will go to great lengths to protect themselves and their long term investments. However the other side of the coin is far more significant. There are huge untapped energy markets around the world. In Asia, their economies are growing so fast that they will buy whatever technology that they can. They are not the pawns of the oil cartels.

Japan imports most of its energy and is spending hundreds of millions of dollars annually to find clean alternatives and is making great strides forward in cold fusion. The economic growth of many countries in Asia is limited by how quickly they can build power stations. Epidemiological studies show that respiratory diseases rank very highly as major health problems in countries such as China, India, Mexico and Thailand where air quality is very poor due to burning of fossil fuels and low or unenforced emissions standards. They are desperate for alternatives.

In China alone there are over 19 million coal miners, as coal provides much of China's energy. However, government officials are very keen to find alternatives to coal and thus alleviate the pollution widespread throughout the country. Over \$30 billion is being invested in the world's largest hydroelectric power plant on the Yangtze river.

If we see resistance in the USA, maybe we should look elsewhere for our markets initially where entrenched interests aren't so entrenched, then bring this technology into North America once a solid foundation has been established. There is no suppression in the right country, because it's a matter of survival.

Belief No 4. “The vested interests, oil companies, utilities, and car manufacturers only want to steal my idea and make billions at my expense.”

Carefully planned licensing can result in license fees and substantial ongoing royalties flowing to the inventor without having to sell out. Many inventors make the mistake of revealing or publishing their technology before it is properly protected, and in effect deny themselves the opportunity of ever being able to patent it. If you have a technology I strongly recommend that you keep it highly confidential until you have seen a patent attorney and found a team that you can trust to commercialize the technology. The whole issue of intellectual property protection does not have to be complex or expensive initially, if you know a few key pointers.



Once the technology is adequately protected and a strategy in place to ensure that the technology cannot be suppressed or shelved, it is our opinion that as a longer term strategy it could be far more profitable (and also ensure achievement of environmental and humanitarian objectives) to include potential competitors and make them partners in certain ventures or niche markets. Turn your enemy into an ally – that's the secret to Aikido, the Japanese martial art that uses the strength of your enemy to your advantage. If a potential competitor is going to otherwise lose market share to new technology, it is good strategy for them to participate in the profitable exploitation of that new technology.

Belief No 5. “The government is not interested in clean energy and wants to maintain the status quo.”

Governments around the world are cumbersome bureaucracies operating under rules and procedures. Some have excellent programs for technology advancement. It is all too easy to give up with governments too early. It takes skill and determination to find the right people and programs in the right governments to give us what we need. All too often a less than enthusiastic response from a disinterested bureaucrat or busy politician results in reinforcing a belief in suppression or conspiracy. Don't waste time fighting an uphill battle. There are plenty of governments and programs that will support us.

USA leads the world in many sustainable energy technologies only because of government support. Vice President Al Gore, in his excellent book “Earth in the Balance”, discusses in depth climate change and energy, demonstrating that disruptions in the climate pose the most serious threat to life on earth. He further lays out an environmental “Marshall Plan” about how to transition to a vibrant sustainable economy.

In Europe, global warming is regarded as a major threat to the survival of humanity, and hundreds of millions of dollars are available in European Community (EC) grants for technologies that reduce CO2 emissions. Amongst many EC energy targets, one is to have wind powering 10% of Europe's electricity by the year 2005. In Brazil a major program has been in place for some years for vehicles powered by fuel from sugar cane. Over the last few years my company has nurtured senior government and industry contacts in Asia who are genuinely interested in new energy technologies and have billion dollar funds available to develop them.

Belief No 6. “The Patent Office will not grant patents for over-unity machines, because in their stupidity they believe that ‘over-unity is perpetual motion and that's impossible, isn't it?’ ”

I have on file at least fifty granted patents for “high efficiency” devices, mostly motors and generators. These devices have all been patented by the inventors with over-unity in mind. Most of us believe that the essence of the “free” energy and cold fusion technologies lies in the tapping or conversion of the “ether” or “zero point energy” field. So why try and disprove the Law of Conservation of Energy? Until it is unequivocally disproved, we should use it and



write the patent applications appropriately and in such a way that a patent will be granted, without the examiners having to rewrite the laws of physics.

Fear - the slow slayer of the human spirit

Fear is an excellent tool for mind control and for destroying the human spirit. Fear is the terrorist's prime weapon. Oppressive regimes have used it throughout history e.g. in Nazi Germany, South Africa, and the USSR. The cold war was fueled on both sides by fear of the other, with neither side wanting to go to war.

In this industry fear is preventing the completion of some very promising technologies, or if completed, fear is preventing their commercialization. The fear of suppression or the "men in dark suits" has driven many to a state of paranoia and an acceptance of the above six beliefs. These are unconsciously sabotaging success. Somehow a prototype is never actually finished and many investors have been maligned for giving up on inventors, when all the investor sees is his money flowing out with no results. I know of several claimed over-unity devices that have been destroyed by their inventors, e.g. one because he feared that someone would steal the technology, and another because of threats. I have no doubt that some people have been threatened, and that is very alarming, but I sense an industry wide paranoia fueled by a few unpleasant and isolated incidents.

I can ask the same question I did previously about first hand accounts of over-unity devices. How many of you have actually been suppressed yourselves? Not stories or rumors about someone else, but a direct and deliberate intervention to stop your technology from becoming successful.

So long as fear remains as a dominant element of our consciousness, we can never be free, and we will never reach our full potential. We will become slaves to that fear and the secrets of "free energy" will not be revealed to us.

Empowerment, Freedom and Creation

The fundamental key in this industry lies in the unique nature of the technologies. For the first time in human evolution (as far as we know from recorded history), here are technologies that tap into the unlimited abundance of the universe -- space energy -- or what some physicists have called zero point energy field, which may allow a whole civilization, based on limited resources, fierce competition, equally fiercely guarded interests and polluting practices, to become obsolete and transcend to a new consciousness. If one of these inventions, instead of being a fuel-less generator, was for instance a new "widget" that had the potential to make billions of dollars profit, it would be nothing in the evolutionary scale compared to a space energy technology; one that demonstrates a fundamental universal law, the law of abundance and of unlimited supply. Energy is the very essence of creation.

This goes beyond a physical product, beyond a business venture, and beyond the realms of each of our life's purpose, and gives us the opportunity to humbly serve a higher force, in changing the course of not only human but the



planet's evolution. This is bigger than any of us as individuals, given to us by some "grace" beyond our understanding.

Success can only be achieved if we are very clear about our vision and how in practical terms we manage to hold and implement that vision, whilst at the same time ensuring a profitable outcome. Achieving that balance hangs on the distinction between two polarities: creativity versus competition.

- Creativity is based on the belief in abundance, the endless stream of new and free ideas.
- Competition is based on the fear of scarcity, and therefore has to fight to survive.
- Creativity flows from the purpose motive rather than the profit motive.
- Greed clings: gratitude gives. Focusing on gratitude raises the spirit, lifting the individual out of the heaviness and pressure of competition and turning them towards a creative frame of mind. Gratitude affirms abundance.
- The future of humanity depends on how well we learn to cooperate rather than compete or fight each other. Cooperation must start with each of us personally.
- A person that is restricted, drained, frightened, punished, controlled and taking is generally a person with less life, health, happiness and love and is on the competitive level.
- A person that is released, energized, enlightened, free and giving is generally a person with more life, health, happiness and love and is on the creative level. Competition takes, and creation gives.

Fear is that insidious poison squeezing the life force from our very souls. The opposite of fear can be expressed in terms of love, freedom and peace. To make this more meaningful, we might take a few moments and quietly reflect on how much love we individually have for ourselves. Do I honor and nurture my body, mind and spirit? How free am I in my thoughts and in my life? Am I a slave to my fears or the master of my destiny? Am I at peace with myself in my heart?

We might ask ourselves how much love, freedom and peace we have in the other major relationships in our lives, for instance our relationship with our families, our friends and colleagues, the relationship with our community, our relationship with nature and our environment, our nation, other nations and our creator.

In conclusion, times have changed. The oppression of the past is giving way to an acceptance of new ideas and technologies to heal the planet. I have had no opposition in my marketing efforts of new energy technologies, in fact quite the opposite. The markets are there; the money is there. All that is lacking is a working "free energy" technology that can be developed into a product.

Now is the time to take courage, put aside our fears and take charge of our own destinies. There is an old saying "If you don't use it, you lose it". This is not



the time to bury our talents. There is no time to lose; the earth will survive, humanity may not.

**“Bold men prefer the boisterous oceans of freedom
rather than the calm backwaters of despotism”**



10.0 APPENDIX 8 - ADVANCED ENERGY PROTOTYPE TESTING AND PREPARATION FOR COMMERCIALIZATION

BY MIKE FISHER, ADVISER OF ZPOWER CORPORATION

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In the "free energy" field, testing and obtaining reliable results has often frustrated inventors and investors alike. Almost every month over-unity results are published in one journal or another. We all want to hear the good news, but unfortunately of the dozens of claimed over-unity technologies our group has not yet witnessed one device that we can be completely sure of, although we are confident that they exist, and will in due course prove to be viable over-unity technologies.

So what's the key to attracting serious investment capital for a 'free energy' machine? Good test results. As an investor in several technologies, and I believe other investors would agree with me, that a prototype which has thoroughly documented and independently performed test results (by multiple, quality engineers) can easily make a device worth ten or even hundred times more to a potential investor. And in the end, the true test which is sure to attract the proper attention is IF the device can run itself – a test which few devices pass, even though they claim over-unity.

The following is a brief summary of our group's experience with a variety of researchers and is aimed at helping inventors and researchers test their machines in order to attract the investment they deserve for the successful commercialization of their technology.

I. Overall Strategy

An investor in technologies in this new energy field needs to feel comfortable on the following four main technical points:

1. The prototype is over-unity or will, with development, achieve over-unity. Ideally it will be self sustaining (can run on its own generated power), stable, reliable and producing useful power.
2. There are no hidden batteries, collectors, antennas etc. which convert energy from other known (or unknown) sources.
3. The prototype can be duplicated, scaled up or down and can be built inexpensively to produce real products.
4. The prototype has been independently tested by a credible organization.



II. Experimental Technique

The following experimental techniques highlight some possible pitfalls in the commercialization process if they are not observed.

Independence of input and output - it is most important that the input and output signals are truly independent. Great care needs to be taken to ensure isolation, especially when measuring very small electrical power signals. One particular error we encountered in an electrical "converter" was a situation where the common earth connection for the instrumentation was also connected to the negative terminal of the input and the negative terminal of the output. In this configuration the earth itself carried a current showing an apparent over-unity result. However, when fully isolated the efficiency was below 100%.

Accuracy estimation - As an important discipline, experimenters may find it useful to carry out an estimation of accuracy for all elements of the test setup, experimental technique and instrumentation. Sometimes an experimenter will have excellent instrumentation but the experimental technique may be subject of error, and in several cases we have come across some huge errors based on false assumptions. One of the most glaring errors I have personally encountered has been in the measurement of shaft power into a supposed over-unity homopolar generator. The generator was driven by an electric drive motor through a belt drive, and the shaft power at the generator was estimated from the electric power delivered to the drive motor at open circuit and also at full load. Incremental efficiency was calculated from these two conditions and an over-unity incremental efficiency was used to justify the potential of a machine capable of absolute over-unity. However at low loads the power factor of a drive motor was nearly 90% (and thus the efficiency of the drive motor was only about 10%) and researcher had erroneously assumed in his calculations that the drive motor efficiency was about 70% thus leading to a gross error in the estimation of shaft power delivered to the generator. The nameplate efficiencies of drive motors and the performance curves supplied by manufacturers need to be checked and should only be used with caution. In the above circumstance a simple dynamometer could have solved the problem very inexpensively.

Have a double check on every instrument - It is wise to have a backup method for every measurement taken. It is easy to make a slip up in technique or make incorrect assumptions, however these are easily picked up by a second set of readings or a double check. This may take the form of a simple calibration of a gauge, meter or dynamometer, or may go as far as a complete set of backup instrumentation, which in most cases is unnecessary when only a proof of concept is required. In the case cited above shaft power at the input of the generator was eventually measured using an in line torque meter and optical revolution counter and was double checked for ball park accuracy using the electrical power input to the motor when under load when the motor characteristics are more accurately determined. The output of the generator was measured at several points electrically and if it had showed promise we would also have double checked the electrical readings using a calorimetric technique.



Beware of signal transients and duty cycle - Many experiments rely on pulsing an input signal for a small percentage of the time and generating an output, e.g. the switched reluctance motors and some resonant devices. The exact wave form of inputs and outputs need to be measured using an oscilloscope, and in our testing we have experienced many errors both in instrumentation and also in the calculation and interpretation of results. Standard meters measuring RMS voltages and currents are only accurate with AC sine waves, and power factor must be taken into account.

Calorimetry and cold fusion - I have not personally tested any cold fusion devices and do not claim to be an expert in calorimetry, but I would like to make one point here about calorimetry. Calorimetry can be highly complex and relies on the meticulous skill of the experimenter. If an outside party wants to discredit a technology that used calorimetry to test it, they will start at the experimental technique. Likewise, an investor needs to feel comfortable that the calorimetry is really accurate before parting with hard earned dollars. I understand several cold fusion experiments have come under attack particularly in regard to the calorimetry, the original Pons and Fleischmann experiments being well publicized.

Industry Standards - In relation to the testing of motors and generators there are industry standards e.g. NEMA and UL in the USA. Some experimenters are not familiar with these standards and have come adrift by measuring the incorrect parameters. For any regular motor and generator full performance figures of power, torque, efficiency etc. against speed are published by the manufacturer and are most illuminating for an experimenter not familiar with testing or detailed analysis. When our group tested one motor that was claimed to be over-unity, we discovered it was only about 10% efficient, and it was later revealed that the experimenter had measured the voltage output at open circuit and the current delivered at closed circuit and multiplied the two together to obtain a power output. It might appear obvious, but voltage and current must be measured at the same time.

III. Third Party Validation

The first step for a researcher is to prove to himself that he is confident with his results. The second step is to have an independent engineer test the device to raise the level of confidence. There are many people in the field who have considerable experience in testing and have no interest in suppressing these technologies.

These experts, among others, can give a level of confidence and credibility necessary to move forward commercially. As a prudent commercial formality it is recommended that the researcher should enter into a non-disclosure agreement with the test engineer prior to testing. However, it is always best to protect all parties by not revealing proprietary information and trade secrets unless absolutely necessary. You don't have to disclose how the device works, just what the results are (i.e. input power versus output power).



IV. Certification

A note about the commercial process may be useful for researchers. Some investors may be comfortable proceeding solely on a researcher's own test results. Most require a professionally qualified engineer to test the machine. To obtain the maximum commercial leverage the technology must be packaged properly with regards to patents, ownership of rights, confidentiality and the subject of this article, testing. An independent test report is likely to be required. Someone who has worked in this field may not be regarded as fully independent no matter how excellent his credentials or technical expertise. Therefore it is important to make the distinction between (a) testing the machine for one's own satisfaction and (b) the more extensive certification as part of a "marketing package" to take to more sophisticated investors and senior contacts.

A test report suitable for investors and certified by one or more credible engineering establishments or universities should contain for following elements:

- Definitive statements about what the technology is and what it is not, particularly in respect of where the excess energy is coming from.
- Testing carried out in accordance with specified industry standards (if applicable).
- A clear description of the experimental setup, techniques, instrumentation, readings taken, accuracy, how the results were calculated and conclusions.
- A statement that the device is not, for instance, a battery, solar collector, transformer, a thermal collector, or a radio receiver etc. In other words a statement is needed to definitively eliminate the common sources of energy.
- An opinion about how the technology could be duplicated, scaled up or scaled down, and suitability for varying applications.

