Defkalion Green Technologies

Company Overview – Market Strategy – Global Positioning

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1. The Company

Defkalion Green Technologies s.a. was established for the purpose to manufacture and release to the market products based on the Andrea Rossi E-Cat invention; essentially undertaking the path from invention to industrialization on a global scale. There is no government financing involved.

Its head offices are in Athens with manufacturing sites located in Xanthi, Northern Greece.

Defkalion possesses the product's know-how, technical support and rights for manufacturing its products for the whole world.

Praxen Defkalion Green Technologies (Global) Ltd., is based in Cyprus; it owns the contract signed with the inventor regarding the industrial secret with right of first refusal to sell globally except the US.

These two companies work towards preparing an efficient and competitive market entry of its products (*Hyperion*) initially into the Greek market, and then with maximum efficiency to the Balkans and worldwide.

In-so-doing, Defkalion shall become an international supplier of innovative patented technology producing cheap and clean thermal energy, offering significant improvements in energy costs and energy sustainability through applications ranging from households, light industry and even to utility providers.

Defkalion shall also invest in R&D to expand its role in this new scientific field to work on new inventions to meet the growing global energy demands more efficiently.

2. *Science & Technology*

Andrea Rossi and Sergio Foccardi have unquestionably succeeded with their invention (Hydrogen and Nickel exothermic reaction, calling it the Energy Catalyzer; commonly referred to as the *E-Cat*) to create and safely reproduce cheap and clean heat at room temperature conditions and with stable results. This process will create a new global energy era with profound and unequivocally positive social, economic and environmental implications.

Many have labeled Cold Fusion with positive and negative connotations. It has also been referred to as LENR and CANR. Most of these terms hold behind them thousands of hours of research work, all hoping to achieve the ultimate energy dream: limitless energy. However, overall, a stigma has created ambiguous feelings of aiming to reach the end of the rainbow. The science behind the products of Defkalion is none of the above, even though it is identified as such in current media coverage.

It is not the Holy Grail; simply put, it is an exothermic reaction between Nickel and Hydrogen that gives off heat; cheap, clean and green heat.

This is a completely new field of science, one that is full of opportunities and challenges. It is a totally new emerging industry; one that will eventually revolutionize the energy sector. Nonetheless, it will require long and complex scientific exchanges long into the future.

As the leading company, Defkalion is ready to provide its full support to the scientific community at large in order to establish a global platform in this direction.

The science elements of Andrea Rossi's invention have been fully documented and extensively discussed online, with scientific papers as well as online scientific exchanges (www.journal-of-nuclear-science.com).

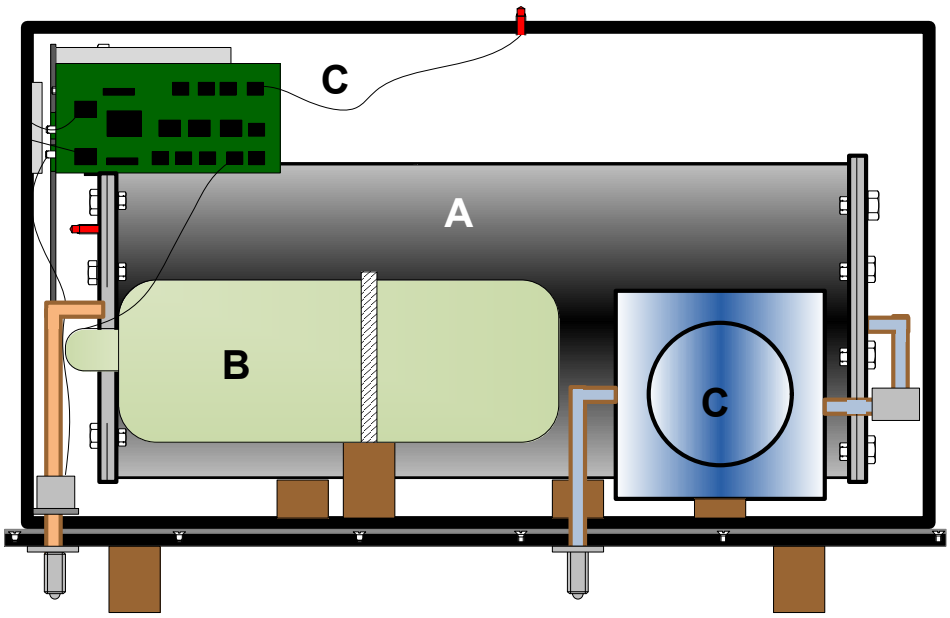
3. Product Status

The technology is currently in its final stages of becoming an industrialized and commercially viable prototype. This forms the basis for a broad range of products under the commercial name *Hyperion*. The current range of products produces surplus energy from 6 to 30 times more heat than energy consumed during its operation. Licensing of all *Hyperion* products is in progress. A fully functioning 1MW heat producing reactor will be inaugurated in Q4 of 2011.

4. Technical Specs

Defkalion Green Technologies has taken the Andrea Rossi E-Cat and created its products around it. Our products produce heat only – not electricity. Our current product line ranges from kW units (5 - 30kW) to MW units (1.15 - 3.45 MW). The actual E-Cat forms only the kernel of our products; it is the black-box so to speak. Building around the E-Cat, we have developed a complex unity of machinery and electronics that comprise the overall product, which we have named *Hyperion*.

The architecture of the kW Hyperion products is based on the following simplified design:



___*Whereby area A* is the E-Cat and consists of:

- Metal tube(s) charged with Nickel and catalysts where the reaction with hydrogen occurs inside to produce heat ranging from 5 up to 30KWh/h.
- A thermally closed circuit (typically glycol) to drive the produced heat out of the module which cools the tube. This is integrated with a cooling liquid circulator-pump (inverted- controlled by unit's electronics) in area C.
- A sealed (isolated thermal and led) internal box
- An electric radiator to heat the tube which starts the reaction consuming less than 0,5kW/h

___*Whereby area B* is a hydrogen canister under pressure, also used as the main switch of the module.

___*Whereby areas C* consists of the electronics that monitor and control the safety conditions of the operation as well as the security of the product against any unauthorized use.

There are absolutely no radioactive materials used or produced, there is no emitted radioactivity nor any other hazardous gases or other materials – both during production but also usage.

5. R&D

Defkalion invests heavily in R&D, accepting radical ideas-research with the aim to push the limits of future emerging technologies beyond the limits of today's scientific community. Defkalion R&D efforts support highly novel and ambitious research through a "bottom-up" research scheme encouraging scientists to think "out-of-the-box".

6. Patents & Licensing

A national patent has been issued for Italy; the EU patent is on its final stage, while the global patent is pending. Hyperion patents are pending. EU safety certificates are in the process of issuance by the relevant authorities. Product tests will be similar to typical commercially available products with standardized procedures according to Performance; Stability; Functionality; and Safety.

7. *Manufacturing & Factories*

Our first factory is already in preparation phase, located in Xanthi, Northern Greece. It has the following characteristics:

- 6,000m2 space
- Maximum production capacity of 300,000 units annually (kW and MW products)
- IT for monitoring the production line and product support
- Technical support to distribution channels

The assembly of products will include the following activities:

- Assembly of reactors (purchased from Defkalion)
- Build-up of final product (electronics, heat management, etc)
- Quality Control and Total Quality Management and Environmental Control
- Stress Tests and Functional Tests of end products
- Recharging of units
- Recycling procedures

The second factory is scheduled to be built in Xanthi within 2012, comprising of 12,000m2 for a larger assembly line. A third factory, belonging to Praxen Defkalion Green Technologies (Global) Ltd., shall operate as the producer of the industrial secret as the products' kernel.

It should be noted that larger and smaller factories can become operational according to market size.

Total staff requirements for both factories will be around 380, and include technical expertise in the fields of: mechanical engineering, engineering, electronics, plumbing, data management, and auxiliary.

The 1MW Hyperion will be inaugurated in Q4 of 2011 with its production phase to commence in Q1 of 2012. This first 1MW reactor will be the first large scale unit based on multiples of the smaller *Hyperion* models in array. It will be used to partially cover the energy needs of the factory. It shall also be used as a show case unit.

With three factories located in Xanthi, the region shall gain in employment but also become an international hub where global investors and partners will visit the factory for business and product viewings.

8. Product Range

Although *Hyperion* models produce only heat energy, electricity can be generated with the application of existing third party technology.

With regards to electricity generation, consumers will be able to receive a total solution based on mutually confirmed interoperability with third party technologies such as steam turbines and micro-steam turbines, Rankin new generation CHP, as well as intelligent heat management systems.

Hyperion products have different configurations, most notably:

- **Series A**: Single tube single module CHP: By this configuration, 5-10Kw heat power will be released to operate micro-CHP/micro turbine configurations
- **Series B**: Multi tube single module CHP: By this configuration, multiples of 5 or 10Kw heat power (max 30kW) can be integrated in the same box , when product has to operate (heat) bigger CHP/micro-CHP or steam turbine configurations
- **Series C**: Single tube single module heat only: By this configuration, 5-10Kw heat power will be released to operate small steam or hot water demands such as agricultural applications (green houses)
- **Series D**: Multi tube single module heat only: By this configuration, multiples of 5Kw heat power can be integrated in the same box , when product has to produce substantial amounts of heat for energy demanding applications
- **Series E**: Single or multi tube modules in parallel: To face the energy demands of big industrial installations at the range of MWs. Such products consists of arrays of A, B, or D series rack-mounted
- **Series F**: Single or multi tube modules in series: To accelerate power in different configurations

All kW range products have the following dimensions: 55x45x35cm

All MW range products are built within a 20” sized container

All products are connected to Defkalion main computers through on-line GSM for monitoring.

9. Markets

The following market segments are INDICATIVE for the Greek market:

Product line	Residential	Light industry	Agricultural	High energy consumption	Special applications
Series A	√		√		
Series B	√	√	√	√	
Series C	√		√		
Series D		√	√	√	
Series E					√
Series F					√

10. Representation & Rights

A streamlined approach to international sales has been selected for negotiations in order to meet the great international demand in order to avoid potential bottlenecks.

Defkalion shall sell the rights to manufacture its products while the kernel (E-Cat) shall be produced in Greece and shipped in plug-and-play format to the industrial/ commercial/distribution partner according to the demand generated (products sold).

We believe the responsibility to extend market coverage should rest with each licensee in order that Defkalion may remain focused on the technological development of its products. All products and transfer-of-knowledge shall be licensed from Defkalion.

Essentially, Defkalion will:

- Sell rights to manufacture Hyperion products under license for a fixed price
- Receive a fixed price per product sold as royalty
- Sell its transfer-of-knowledge regarding the production, technical, and after sales support and maintenance for a fixed price
- Supply the industrial secret in a plug-and-play black-box on generated demand

National exclusivity depends on the country since the larger the country is, the more difficult it will be to meet the expected large demand from the onset.

11. Advantages & Reasons Why

Economic growth is inevitable from the widespread use of *Hyperion* products. The use of Hyperion products could be the most ambitious energy transformation ever. Reasons to use Hyperion products:

- Reduce energy costs
- Reduce production costs
- Reduce industry costs
- Reduce dependence on imported fuels
- Improve the environment
- Drive economic growth

Hyperion advantages:

- Cheap: Hyperion can reduce the price of electricity by 90%
- Abundant: A typical Series C *Hyperion* 20kW product can generate up to 157 Mw in one year of operation. Regarding raw materials, Greece possesses 83% of Europe's Nickel deposits. With its own usage, the price of creating Hydrogen will also become economically viable for its abundant use.
- Clean: The use of Hydrogen and Nickel produces Copper. There are no harmful to the environment substances during its production, use and afterlife.
- Green: no hazardous or toxic chemicals are required either in its production or in its consumption, unlike standard fossil fuel residuals.
- Safe: Analyses and tests for Performance, Stability, Functionality, and Safety will all be warranted from international accepted bodies to allay the fears of all potential nay-sayers that it is totally safe with zero radioactive emissions and zero harmful environmental emissions.
- Versatile: A broad spectrum of applications can benefit according to the level of output power. *Hyperion* products can be used in homes, hospitals, light industry, even propulsion. The extent to which is based on our continuing R&D efforts.

Hyperion arguments

- Theories are difficult to kill, but a power-generating process is fairly easy to prove: does it release energy, or not? If the technology works, the theoretical controversy and academic debate won't stop commercialization.

- The reason this is not front page news everywhere is because people use the paradigm: it sounds too good to be true.
- With respect to academic dissention over their discovery: this is tough because it's basically telling very smart people that what they have learned, known, and taught is no longer true; a difficult pill to swallow for anyone. It’s hard to discern natural bias from rational assessment.

Some benefits from energy efficiency:

- Increased financial stability
- Lower CO2 emissions
- Ensured security of supply
- Better trade competitiveness

12. Public Acceptance

We face daunting challenges in delivering secure, affordable, sustainable and environmentally acceptable energy production to support a precarious globally economy. The successful growth remains critically dependent upon public demand, which stems from public education and awareness. Educating the public is necessary for people to understand and accept this new energy. As such, in order to efficiently facilitate market acceptance, promote commercialization, and grow market share, some basic needs include the following: Learning Centres; Innovation Centres; Education Materials; Clean Cities; Environmental Groups; Advertisement & Media Campaigns.

Parenthetically, the Wright Brothers were dismissed by the US government and most academic experts of their day when they said they could fly. In his book THE WRIGTH BROTHERS, Fred C. Kelly writes:

> *"When a man of the profound scientific wisdom of Simon Newcomb (for example) had demonstrated with unassailable logic why man couldn't fly, why should the public be fooled by silly stories about two obscure bicycle repairmen who hadn't even been to college? Professor Newcomb was so distinguished an astronomer, that he was the only American since Benjamin Franklin to be made an associate of the Institute of France. It was widely assumed that what he didn't know about the laws of physics simply wasn't in books. And that when he said that flying couldn't be done, there was no need to inquire any further."*

13. Energy Sector

The transition to a low-carbon, nuclear-free economy is in its very early days, but still, fossil fuels are – at large – the most efficient, reliable and affordable energy solutions today.

The transformation of the global energy system has begun, but the world's energy demand is so widespread that such a change cannot and will not happen overnight.

New technologies have and will continue to impact the horizon of cleaner, smarter and attainable energy alternatives, bringing us closer to a new energy era with profound and even radical developments in the next decade.

As we speak, the energy field is currently being discussed the world over. Not only are we faced with a global financial crisis, witnessing ever increasing fossil fuel prices, but we are currently living in a period with widespread technological advances in alternative, renewable and green energy sources. Furthermore, nuclear power disengagement is becoming ever more prevalent in numerous countries. Investments, government programs and incentives for green energy innovation are becoming more imperative than ever before.

Defkalion sees its position as a new market entrant with great opportunities to increase the range of energy sources available to our energy-hungry planetary needs. We do not see *Hyperion* models monopolizing market shares, but we do expect to broaden the available opportunities for cheaper, cleaner and greener energy sources.

The energy sector will become more efficient. The international availability of *Hyperion* products will provide current energy sources with a longer lifeline as well as cheaper production costs.

The end user is expected to witness an era where the consumption of energy is not dependant upon price but the availability of this technology.

Defkalion shall pursue a policy of efficient global dissemination, allowing all interested parties to become carriers, users, and representatives of this breakthrough technology.

14. For Greece

Today's global economic crisis has brought about the widespread phenomenon of reduced sales, depressed industrial production and scarce commodity prices, forcing ever increasing unemployment.

Greece's current financial crisis is a European and indeed global crisis with implications not only for the Greek citizen, but for many institutions, companies and indeed its political system and beyond.

Energy and Climate Change policies are now centre stage in the EU. The urgency to reduce dependence on fossil fuels and curb emissions of air pollutants as well as carbon dioxide is ever increasing; the demand for cleaner fuels, cleaner vehicles, and cleaner cities is becoming ever more prevalent in top political agendas.

The national and global transition to a new energy economy has significant socio-economic and political benefits. National energy self-sufficiency can move a country into a new economic era, protecting from bankruptcies, spurring economic activity, and avoiding deindustrialization.

With the successful implementation of this technology into mainstream use, Greece's future will be directed towards becoming energy self-sufficient and its economic revival.

- Defkalion can play an integral role in achieving these needs.
- Greece has the potential to assume such a leadership role.
- Decisions made today will have implications for decades to come.
