

## Current Status and Proposal for R&D for Magnetic Miles LENR Technology

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### Proposal:

Two technology streams are suggested for the Magnetic Miles LENR technology, the first (and existing) being the nuclear waste remediation technology stream, which was ongoing until halted for financial reasons more than a year ago, and the second, a new electrical generating and storage technology aimed at the electric automobile and other industries utilizing the Magnetic Miles pulsed power unit. These, by necessity, are both preceded by re-making the pulsed power supply so that it operates in a reproducible, repeatable, and reliable fashion.

The development of nuclear waste remediation technology is well beyond the current resources of Magnetic Miles other than a simple demonstration of the transmutation reaction. It is proposed that this development stream proceed from where it was when shut down, that is, the accumulation of 400 hours run time on a set of electrodes followed by independent laboratory verification to verify that a nuclear transformation has occurred, putting this stream in the position of potentially attracting academic or institutional partnerships.

An academic colleague responding to my query regarding what is needed from the LENR industry: “Direct Electricity, is the holy grail and that is where we will be in a generation, hopefully sooner. So that is what I would focus on. If we have that, we can get to everything else we need with high efficiency.” This is the path of Magnetic Miles LENR has been travelling for several years now and continues to be a viable path.

Further, it has always been the author’s contention that a device is far more marketable than the device science developed prior to having a proven concept in hand. To this end, a mechanism of storing and re-using the energy from the Magnetic Miles pulsed power supply is proposed. A new energy storage device called a vacuum capacitor has recently entered the marketplace ([www.FreeL.tech](http://www.FreeL.tech)). The manufacturers claim that the device can store electrical energy at a fraction of the weight and volume compared to the best Lithium-ion or lead acid technologies available. It is proposed that the Magnetic Miles power supply be adapted to the vacuum capacitor for energy storage for electric vehicles for example. This stream, entitled “evo charger”, uses the pulsed power supply to raise the energy levels of the “exotic vacuum objects”<sup>1</sup> theorized by the manufacturer to be the storage media for the device. This technology, if taken to a proof of concept stage, will get the attention of Elon Musk at Tesla for example far easier than an arc discharge would attract a power utility. The energy storage density of the device will put his Lithium-ion technology to shame. It is anticipated that the Magnetic Miles power unit will charge the vacuum capacitors faster, and if “vacuum energy is truly involved, with less energy required.

The table below summarizes the necessary steps needed to get the LENR project back in operation. The bulk of the equipment should be in place to carry on with the transmutation and direct electrical energy streams. For budgetary purposes, the year has been broken into four quarters, each quarter costing in the ball park range of \$30K-\$60K for lab space, utilities, and personnel and

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<sup>1</sup> An exotic vacuum object is a cluster of thousand to millions of electrons, held together by electrodynamic forces. This was studied extensively by Ken Shoulders, until his death at the turn of this century.

\$7K-20K for equipment upgrades, additions, and repairs, with a corporate review scheduled for the end of each quarter.

It is thought that it will take about three months to get the laboratory operational<sup>2</sup> and staffed at a ball part cost of \$37K to \$80K, assuming that the equipment already in storage is more-or-less operational. This includes the purchase of new video recording equipment to make sure that a detailed development record is provided. The feasibility of the evo charger will be demonstrated, before any significant expenditure on parts or equipment is made.

Another three months will be required to restore the measurement equipment to a satisfactory state of operation, develop the power supply to a reproducible and more reliable state, and get the discharge arc to operate in a non-equilibrium yet stable state, as described in earlier reports. Evo charger concepts will be produced and verified in this quarter with enough detail to justify the expenditure of funds for the generation and proof of concept prototype.

The third quarter will see discharge time accumulating on the tungsten electrodes, and the verification by testing that a transformation relation is occurring. The evo charger will have a verified proof of concept design by the end of this quarter. The laboratory and its projects will be at a state of readiness to welcome visitors for demonstration purposes in this quarter.

The fourth quarter will see external verification of the expected accelerated nuclear transformation reactions, and the search for an academic, institutional and/or industrial partner to take the pre-technology concepts further. In addition, an evo charger concept will be recommended for further development. It is premature to say that the development will be ready to seek partnerships at this point in time.

As a back-up to the evo charger, adapting the Magnetic Miles power supply for hydrogen storage could be considered. The markets and recent history for hydrogen technology has been earlier reviewed by the author<sup>3</sup>; its development requires a significant change of focus and should be readdressed if the evo charger fails to live up to expectations.

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<sup>2</sup> Past experience has suggested that it takes a couple of months of effort on the part of the inventor to restart the device once it had been non-operation for a period of time. Yet to demonstrate the technology to an interested party, the operation of the apparatus needs to be repeatable, and reproducible, able to be reconstructed and operated by personnel that did not originate or develop the idea at a location differing from the development site. So far, the process has proven repeatable, having been started and stopped many times by Devon, and for brief intervals by Russ and Lenny, but only partially reproducible, since the apparatus has remained essentially in the same form over its history.

<sup>3</sup> The current Magnetic Miles device produces large volumes of gas which had been purposefully configured to be non-explosive. The make-up of this gas is unknown, but literature suggests that it may be “gray fog” as reported by Graneau, formerly at MIT and Northeastern University. Gray fog is a stable form of hydrogen where hydrogen molecules or atoms are encapsulated in a sheath of water molecules, making the explosive gas largely inert, but also easily released when its explosive capability is required (automotive applications for example). This topic is currently experiencing a resurgence under the name of “Brown’s gas”, exotic vacuum objects, water clusters, etc., in the nanotechnology field. The Magnetic Miles apparatus could be reconfigured to produce hydrogen. Whether or not it is Gray fog is to be determined. This would be a new experience for the lab, requiring equipment and devices to contain the gas and measure their explosivity.

**Table 1**

Time (mo.)	Fixed Costs (\$) <sup>4</sup>	Equipment Costs (\$) <sup>5</sup>	Laboratory Re-Make	Power Source	Transmutation	Direct Electricity
1	10K-20K	5K-10K	Find Lab space Find personnel			Feasibility of evo charger
2	10K-20K	1K-5K	Assess equipment status Purchase/repair equip't	Purchase parts -batteries, IGBT's		Feasibility of evo charger
3	10K-20K	1K-5K	Install recording equip't	Install power supply	Lab fire safety EMP shield	Plan for evo charger
<b>TOT.</b>	<b>30K-60K</b>	<b>7K-20K</b>	<b>PROGRESS REVIEW<sup>6</sup></b>			
4	10K-20K	5K-10K	Re-assess lab readiness -additional equipment	Power supply mod's	Install equip't -modify arc	EVO charger concept
5	10K-20K	1K-5K		Power supply mod's	Install equip't	EVO charger concept
6	10K-20K	1K-5K		Power supply mod's	Install equip't Accumulate discharge time	EVO charger concept
<b>TOT.</b>	<b>30K-60K</b>	<b>7K-20K</b>	<b>PROGRESS REVIEW<sup>7</sup></b>			
7	10K-20K	5k-10K			Accumulate discharge time	EVO charger design
8	10K-20K	1K-5K			Accumulate discharge time	EVO charger designed verified
9	10K-20K	1K-5K			Accumulate discharge time Preliminary lab results Seek partner	EVO charger prototype
<b>TOT.</b>	<b>\$30-60K</b>	<b>7K-20K</b>	<b>PROGRESS REVIEW<sup>8</sup></b>			
10	10K-20K	5k-10K			Accumulate discharge time Seek Partner	EVO charger prototype Seek Partner
11	10K-20K	1K-5K			Accumulate discharge time Seek Partner	EVO charger prototype
12	10K-20K	1K-5K			External lab analysis Seek Partner	EVO charger prototype Seek Partner?
<b>TOT.</b>	<b>30K-60K</b>	<b>7K-70K</b>	<b>PROGRESS REVIEW<sup>9</sup></b>			

<sup>4</sup> Based on data provided for period March – July, 2017 for which average monthly cost was \$14K (corporate data).

<sup>5</sup> Rough estimate – existing equipment operational state and future equipment purchases costs not known .

<sup>6</sup> First quarter-lab operational, personnel in place, equipment repaired/updated, plan for evo charging device.

<sup>7</sup> Second quarter-power supply issues solved, accumulating discharge time, evo charger concept

<sup>8</sup> Third quarter-preliminary transmutation results -seek partner, evo charger design verified

<sup>9</sup> Fourth quarter- finish transmutation run -seek transmutation partner, evo charge prototype verified, seek partner.

## Competing Technology:

The following is an update on the changes in the industrial LENR community over the past year.

**E-CAT SKL Device (Leonardo Corp.-Italy):** Rossi has new financial/manufacturing partners whose identities have not been revealed. He has all but abandoned the “heat” reactor in favor of the SKL. The details on his “new” technology are scarce, but what has been released is that it is an electricity and heat source with electricity representing 80% of the energy output. Rossi claims that the SKL device is still at the prototype stage but has investment funds secured. A demonstration was scheduled for January, 2020 but was postponed.

**Brilliant Light and Power (U.S.A.):** Brilliant light and Power’s Sun Cell technology uses a moderately high temperature plasma to drive a turbine which in turn drives an MHD electrical generator. The energy output is reported to be two to four times the input energy as verified by recent independently preformed testing. They have multi-million dollar backing and seem to be finishing the “proof of concept” stage of development.

**Aureon Energy (Canada):** SAFIRE, until recently has been an academically focused, moderate temperature (20,000C) plasma facility that has recently been targeted for commercialization by Aureon Energy of Ontario, Canada. The device, an electrically driven plasma with a novel spherical electrode system, is still in the proof of concept stage. The targeted markets are nuclear remediation and electrical energy generation with predictions of a five-year development period before market entry. This is a new entry into the industrial applications of LENR. The development history is impressive and the facilities world class<sup>10</sup>.

**Industrial Heat LLC (U.S.A.):** As of June 13, 2019, Industrial Heat, evaluated at \$918 million, has invested in several LENR groups including Rossi (which did not end well<sup>11</sup>). They have recently raised over \$100M in new development capital<sup>12</sup>, with investments made by Brad Pitt (Hollywood actor) and Laureen Powell Jobs (the widow of Apple co-founder Steve Jobs) in an attempt to turn “fantasy into reality” i.e. commercialize cold fusion technology.

**Hydrogen Generation Technology (U.S.A.):** As reported earlier, the anomalous generation of hydrogen, far in excess of that produced by traditional electrolysis, is receiving renewed interest by the automotive and manufacturing sectors, and more recently for on-site production on ocean going vessels. Joi Scientific of Hawaii had entered into a licensing agreement with MarineMax, a large Yacht manufacturer headquartered in Clearwater, Florida using their hydrogen production technology which was claimed to produce hydrogen far in excess of what was expected based on traditional thinking. However, Joi’s claims of excess hydrogen production have been recently proven to be fraudulent.

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<sup>10</sup> <https://aureon.ca/opportunity>

<sup>11</sup> <https://www.ft.com/content/024cfc4a-8df6-11e9-a1c1-51bf8f989972>

<sup>12</sup> <http://www.sifferkoll.se/sifferkoll/is-industrial-heat-carpet-bombing-the-lenr-community-with-vaporware-patent-documents-is-litigation-their-only-business-idea/>

## **Current Status of the Magnetic Miles LENR Project:**

The most significant change in the Magnetic Miles LENR project over the past year has been the passing of Devon Meyers, the lead technical developer for the project. Although he was officially not part of the project for a year or so prior to his passing, his presence is and will be deeply missed. Since Devon's passing, for financial reasons, the LENR laboratory was dismantled and put into storage, with further LENR developments put on hold.

Prior to lab closure, the pulsed LENR power source was almost at a stable operating state, thanks to the dedicated efforts of Lenny and Russ. This required an almost complete overhaul of the equipment and experimental apparatus and included the purchase of new equipment capable of measuring the characteristics of the pulsed LENR discharge with greater precision than was available earlier.

At that time, the major goal of the project, was the accumulation of 400 hours of discharge time on a single set of electrodes, which would then be sent to an outside laboratory to have the accelerated transmutation rates for thorium into lead and tungsten into hafnium verified. It was felt that this could provide a good basis to position the technology with an institution more suited to developing the technology along the nuclear remediation path. The desired operating state lasted however for very limited time periods. After times limited to a minute or so, the electronics that control the power source would fail. The difficulty is that successful operation of the apparatus must occur within a very small operational window in a large playing field of variables. Unfortunately, when the apparatus was not operating in this window, the equipment would become severely electrically overloaded with the result being catastrophic. Redesigning the switching apparatus in the power supply (doubling the IGBT's to handle the voltage transients) was suggested by Russ Davis, but implementation of the modification never occurred due to lack of funding.

The "University of Utah" was approached regarding potential collaboration: From Utah, *"No concrete progress on Utah partnership to report...I continue to reach out to ... people in the sciences/engineering that would provide the support that is needed. I am not unhopeful..."* Nothing has changed in this over the past year. Further, the results of a \$10 million joint Google and multi-university study to demonstrate excess energy in a deuterium LENR apparatus were released a year ago, and were not positive. They concluded that the prospect of excess energy is still ambiguous in LENR, and requires further study<sup>13</sup>. They also a point to a possible narrow operating window for the reaction not dis-similar to what Magnetic Miles faces, although in an entirely different mode of operation. It is hard to say if the study influenced overall academic interest or not, given the current world situation.

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<sup>13</sup> <https://e-catworld.com/2019/05/28/nature-google-funded-team-fails-to-generate-cold-fusion-in-400-experiments/>